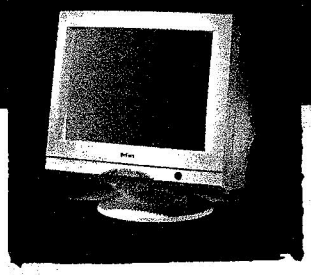
Belnea



Color Monitor
Service Manual

[10 60 95]

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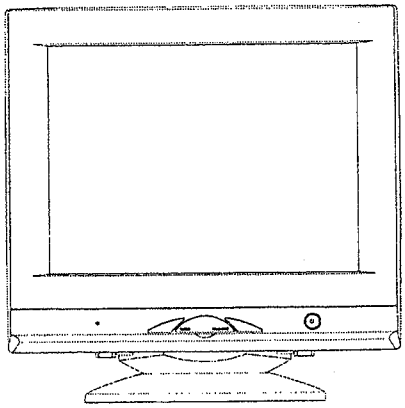
Service Manual

OSD Color CRT Display



MODEL :106095

Chassis Family No.VC6

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians.
Any attempt to service or repair the product or products dealt within this service information by anyone else could result in serious injury or death.

SAFETY PRECAUTIONS

1. CAUTION

No modification of any circuit should be attempted. Service work should only be performed after you are thoroughly familiar with all of the following safety checks and servicing guide lines.

2. SAFETY CHECK

Care should be taken while servicing this CRT display because of the high voltage used in the deflection circuits. These voltages are exposed in such areas as the associated flyback and yoke circuits.

3. FIRE&SHOCK HAZARD

3-1 Insert an isolation transformer between the CRT display and AC power line before servicing the chassis.

3-2 In servicing pay attention to original lead dress especially in the high voltage circuit. If a short circuit is found, replace all parts which have been overheated as a result of the short circuit.

3-3 All the protective devices must be reinstalled per original design.

3-4 Soldering must be inspected for possible cold solder joints, frayed leads, damaged insulation, solder splashes or sharp solder points. Be certain to remove all foreign material.

4. LEAKAGE CURRENT HOT CHECK

4-1 Plug the AC cord directly into the AC outlet. Do not use an isolation transformer during this check.

4-2 Connect a 1500 ohm, 10 watt resistor, paralleled by a 0.15uF capacitor between each exposed metallic part and a good earth ground(as shown in Fig.1).

4-3 Use an AC voltmeter with 1000 ohm/volt or more sensitivity and measure the AC voltage across the combination 1500 ohm resistor and 0.15uF capacitor.

4-4 Move the resistor connection to each exposed metallic part and measure the voltage.

4-5 Reverse the polarity of the AC plug in the AC outlet and repeat the above measurement.

4-6 Voltage measured must not exceed 7.5 volt RMS, from any exposed metallic part to ground A leakage current tester may be used in the above hot check, in which case any current measured must not exceed 5.0 milliamp. In the case of a measurement exceeding the 5.0 milliamp value, a rework is required to eliminate the chance of a shock hazard.

Note: High voltage is present when this CRT display is operating. Always discharge the anode of the picture tube to the display chassis to prevent shock hazard.

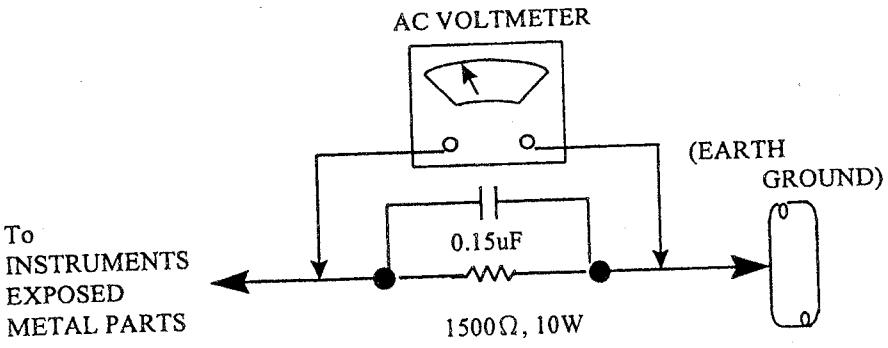


Fig.1

5. IMPLOSION PROTECTION

Picture tubes are equipped with an integral implosion protection system, but care should be taken to avoid damage and scratching during installation. Use only CPT replacement picture tubes.

6. X-RADIATION

WARNING: The only potential source of X-Radiation is the picture tube. However when the high voltage circuitry is operating properly there is no possibility of X-Radiation problem. The basic precaution which must be exercised is to keep the high voltage at the following factory-recommended level .

Note: It is important to use an accurate periodically calibrated high voltage meter.

6-1 The procedure for adjustment high voltage is as shown on (page 19).

6-2 If can not be adjust 25.5 KV at immediate service is required to prevent the possibility of premature component failure.

6-3 To prevent X-Radiation possibility it is essential to use the specified picture tube.

IMPORTANT SAFETY NOTICE

There are special components used in this CRT displays which are important for safety. These parts are identified by the international symbol ⚠ on the schematic diagram and on the replacement parts list. It is essential that these critical parts should be replaced with manufacture's specified parts to prevent X-RADIATION, shock, fire or other hazards. Do not modify the original design or this will void the original parts and labor guarantee.

GENERAL INFORMATION

1. OUTLINE

TCO7S is 19 inch (17.95" Viewable) color CRT display with the following nice features. OSD (on screen display) control is newly introduced, which allows easy user adjustment power saving function, which helps saving energy, is also one of the highlights of this model.

2. FEATURES

2-1 Power Saving

Built in Power Saving function based on VESA-DPMS standard.
Power energy shall be saved by controlling the circuit in accordance with power save signal from computer.

2-2 OSD (on screen display) function

OSD (5 languages) is new and excellent man-machine interface.
Anyone is able to set up the picture as he like through OSD menu.

2-3 Self Test function

Self testing picture comes out by pushing any key in the case of no-connection with computer or power saving operation.
This function shows if monitor is alive or not and can be used for self aging test.

2-4 Ergonomic design

- Low emission design to meet TCO99.

2-5 Multi scan with digital technology

- 8 bit micro computer controls the circuit operation to meet with wide range signal of f_H=30~95 KHz and f_V=50~160 Hz. So VGA640× 480, VGA720× 400, VGA640× 480, SVGA800× 600, VESA1024× 768 , 1152× 864, 1280 × 1024 and 1600 × 1200 mode(non-interlaced) are applicable.

2-6 The product has totally 15 memory modes.

- 1 standard mode is preset at the factory.
- 9 modes are reserved at the factory.
- 6 user memories are available to set the users own timing and display information.

2-7 Flat Face and fine dot pitch

- Flat face CRT with a fine dot pitch of 0.25mm gives a comfortable sight of the screen.

2-8 Superior display performance.

- Good focus by sophisticated gun and dynamic focus circuit.
- High contrast.
- Minimized distortion by correction circuit.
- Good convergence.
- Users enjoy full scan image for graphic.

2-9 Special function

- VESA DDC 1/2B (Display Date Channel) compatible.
- Rotation control circuit.

SPECIFICATION

1. MECHANICAL SPECIFICATIONS

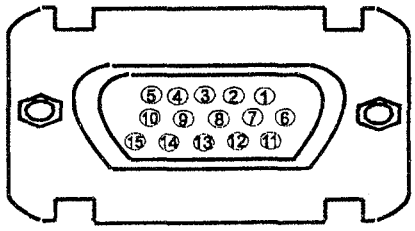
.....refer to the attached drawing

1-1 Dimension Height :456 mm typ.
Width :460 mm typ.
Depth :457 mm typ.

1-2 Net Weight :20kg (Net)

2. CONNECTORS

2-1 Signal connector:
15P Mini D-Sub cable



PIN	SIGNAL	PIN	SIGNAL	PIN	SIGNAL
1.	RED	6.	RED RETURN	11.	GROUND
2.	GREEN	7.	GREEN RETURN	12.	SDA(DDC Data)
3.	BLUE	8.	BLUE RETURN	13.	H. SYNC
4.	GROUND	9.	(OPEN)	14.	V.SYNC
5.	GROUND	10.	GROUND	15.	SCL (DDC Clock)

PIN LAYOUT & PIN ASSIGNMENT CHART

3. CRT SPECIFICATIONS

Part No.	M46AJM 53 × 76
Type	19",90° ,29 § ,In-line gun
Dot Pitch	0.25mm
Phosphor	R,G,B Short Persistence
Coating	Anti-glare & Anti static
Screen treatment	Sputter Coating for TCO
Total Transmission	53%

4. ELECTRICAL SPECIFICATIONS

4-1 Standard conditions...Except special items

Display image	Cross-hatch pattern Video signal:100% duty Display area:350mmx 262mm
Video signal level	Analog 0.7 VPP/75 Ohm, positive
Contrast, Brightness	Contrast: Max., Brightness: 60%
Ambient Temperature	20± 5℃ (68± 9°F)
Input Voltage	AC 120V, 60 Hz or 220 V 50Hz
Terrestrial magnetism	Vertical field:northern hemisphere field 43uT (southern hemisphere field-43uT) Horizontal field: no field
Viewing direction	Parallel to the CRT axis
Measurements	After an initial warming up time of more than 30 minutes
Ambient light	200± 50Lux
Resolution	Max.1600x 1200 pixels

4-2 Power

4-2-1 Power supply...Commercial power source

Input voltage	AC 100V-240V AUTO
Power frequency	50 Hz ± 3Hz , 60Hz ± 3Hz
Input current	2.0A Max.(AC 132V)
Inrush current(at 20℃)	50 A Max (AC 264V)
Power consumption	110 W (Max.)

4-2-2 Power Management for Power Saving...

Power saving system is designed based upon VESA DPMS standard

1) Power consumption and recovery time.

*1 APM State	SIGNALS			MONITOR POWER CONSUMP-TION	RECOVERY TIME TO ON STATE	INDICATOR
	H.Sync	V.Sync	VIDEO			
ON	*3 NORMAL	*3 NORMAL	*2 ACTIVE	110W	------	Green
STAND-BY	No Sync or *5 <10Hz	>40 Hz	BLANK	< 15W	< 6s	Orange
SUS-PEND	>10 kHz	No Sync or *5 <20Hz	BLANK	< 15W	< 6s	Orange
OFF	No Sync or *5 <10Hz	No Sync or *5 <20Hz	BLANK	<5W	<10s	orange

**The transition time from ON state to each APM state is 5 seconds minimum.

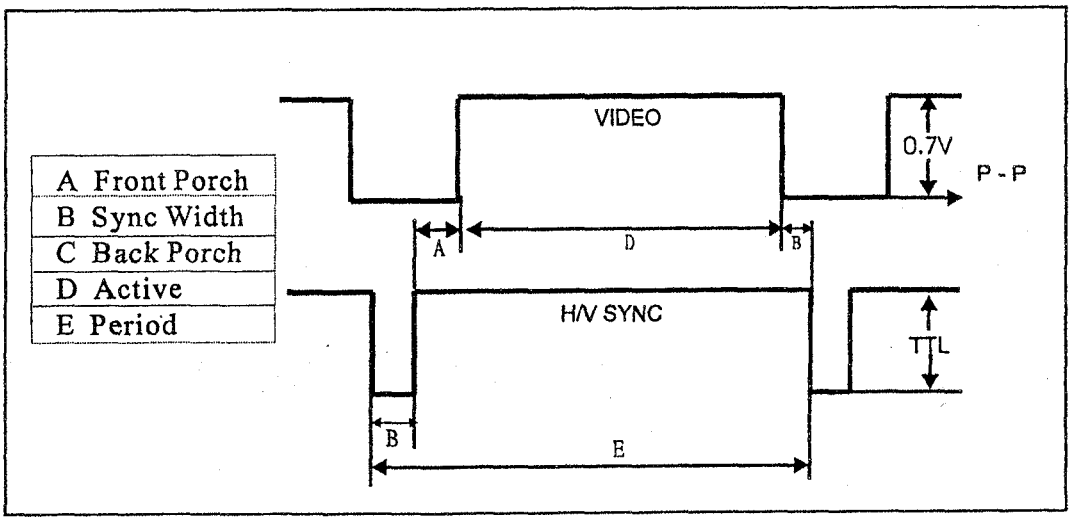
*1:APM:Advanced Power Management.

*2:Means. Condition of power consumption for ON state.
DISPLAY IMAGE: Cross hatch pattern , with a border line(7x 9 dots).
*3:NORMAL:See "Timing chart".
*4:Power Consumption is measured at AC 100-240V.
*5:Power saving operation is done at least less than specified value in the list.

4-3 Standard timing (Standard mode).

- Following 1 mode is preset in the memory as standard timing at the factory and 9 modes are reserved..
- Electrical performance is specified at STD (1024x 768) mode unless otherwise mentioned.

TIMING CHART



Timing	1	2	3	4	5	6	7	8	9
Standard	Industry	VESA	VESA	VESA	VESA	VESA	VESA	VESA	VESA
Data Pixel	640	640	720	800	800	1024	1024	1280	1600
Data Line	480	480	400	600	600	768	768	1024	1200
H-Freq kHz	31.469	37.5	31.467	46.875	53.674	60.023	68.667	91.146	93.75
V-Freq Hz	59.942	75.000	70.082	75.000	85.061	75.029	84.997	85	75
Pix Rate	25.175	31.500	25.175	49.500	56.250	78.750	94.500	157.5	202.5
Hor.A (us)	0.636	0.635	0.636	0.323	0.569	0.203	0.508	0.305	0.316
Hor.B (us)	3.813	2.032	3.813	1.616	1.138	1.219	1.016	1.016	0.948
Hor.C (us)	1.907	3.683	1.907	3.232	2.702	2.235	2.201	1.524	1.501
Hor.D (us)	25.422	20.317	25.422	16.162	14.222	13.003	10.836	8.127	7.901
Hor.E (us)	31.778	26.667	31.778	21.333	18.631	16.660	14.561	10.971	10.667
Vert.A (ms)	0.318	0.027	0.254	0.021	0.019	0.017	0.015	0.011	0.011
Vert.B (ms)	0.064	0.080	0.064	0.064	0.056	0.050	0.044	0.033	0.032
Vert.C (ms)	1.048	0.427	1.111	0.448	0.503	0.466	0.524	0.483	0.491
Vert.D (ms)	15.253	12.800	12.711	12.800	11.179	12.795	11.183	11.235	12.8

Vert.E (ms)	16.683	13.333	14.268	13.333	11.756	13.328	11.765	11.761	13.333
Sync.Pol. H.	-	+/-	-	+/-	+/-	+/-	+/-	+/-	+/-
Sync.Pol. V.	-	+/-	+	+/-	+/-	+/-	+/-	+/-	+/-

4-4 Signal level and input impedance

4-4-1 Video Signal level

- This CRT display is adjusted at the factory using 0.7Vpp Video Signal. Black level is 0 V.

4-4-2 Sync Signal level

- H/V Separate, H/V Mixed: TTL level.

4-4-3 Input impedance

- Video input:75Ω
- Sync input: ≧1kΩ

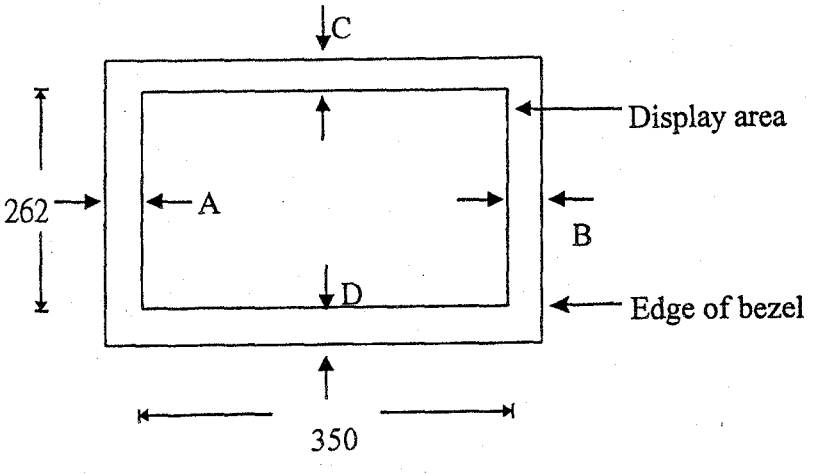
4-5 Display performance

4-5-1 Display area

- Preset Timing
  Mode: 7
  Width: 350mm ± 4mm
  Height: 262 mm ± 4mm

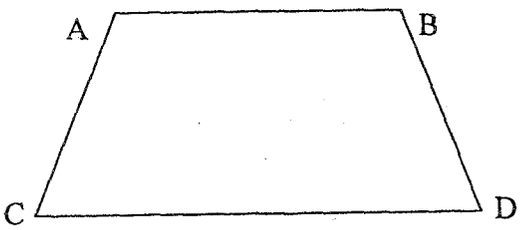
4-5-2 Centering

- The display centering can be adjusted within the center of bezel by external controls .

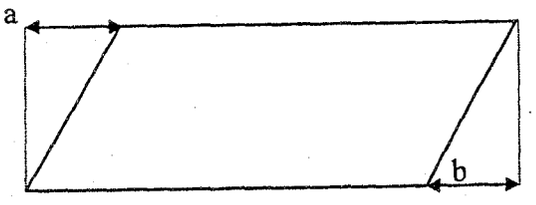


4-5-3 Distortion

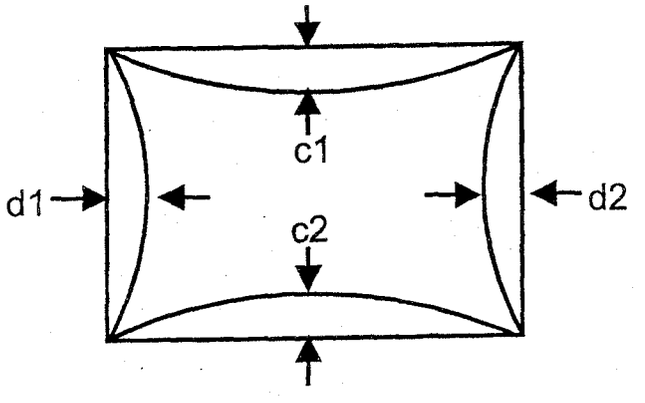
- Trapezoid
  | AC-BD | ≦2.5 mm
  | AB-CD | ≦2.5 mm



- Parallelogram
  a,b ≦1.5mm

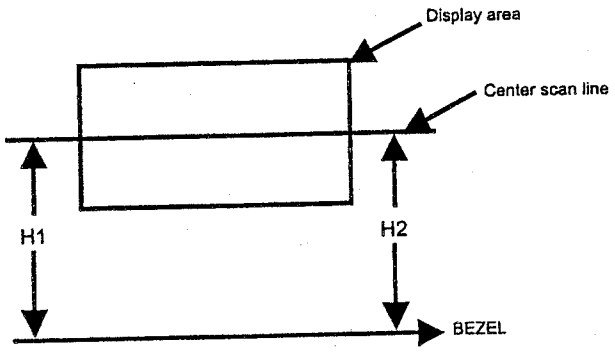


- Pincushion and Barrel
  | c1 | , | c2 | ≦1.5 mm for Pincushion and Barrel
  | d1 | , | d2 | ≦2.0 mm for Pincushion and Barrel.



4-5-4 Rotation

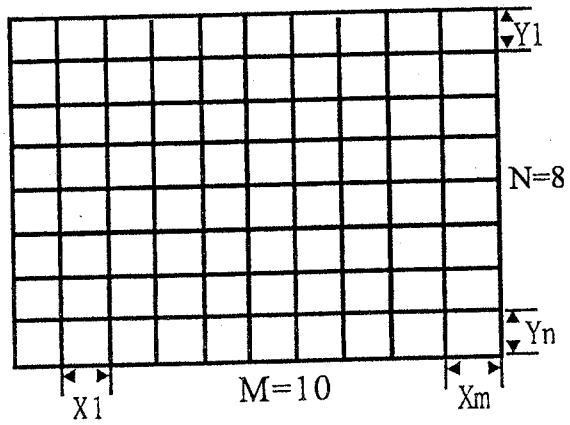
| H1-H2 | ≦2.0 mm



4-5-5 Primary Test Mode 1024× 768 at 85Hz

Horizontal Linearity≦5%

Vertical Linearity≦5%



<Conditions>

Display image-------crosshatch pattern

Maximum and minimum values should not be adjacent to each other.

$$\text{Calculation:H/V-Linearity} \quad \frac{\text{Max-Min}}{\text{Max + Min}} \times 100$$

4-6 General performance

4-6-1 Video output

Bandwidth 160MHz (Typ.)

4-6-2 Luminance

Value	Conditions	Display Image
≦ 0.5 Ft-L	Brightness at max. Contrast at min.	Background
40 Fl ± 5 Fl	Brightness at cut off. Contrast at max.	50 mm × 50mm in the center of Video pattern
33Fl ± 3 Fl	Brightness at cut off. Contrast at max.	White full flat field
Specified by 9300k+27 MPCD		

4-6-3 Luminance uniformity

Luminance uniformity≧75%

<Conditions>

Luminance uniformity shall be determined by the following formula:

$$\frac{\text{Luminance of Lowest corner}}{\text{Luminance of Center}} \times 100\%$$

4-6-4 Display area regulation

	Display area variation	Range of variation
Due to Luminance	within 2 mm	Contrast 5 FL-Max (white flat field)
Due to Power Supply	within 0.5%	AC:90-132V or 198-264V
Due to Temperature	within 1.0%	20℃ ± 2℃

4-6-5 Color Point

<Conditions>

Display image: White flat field at the center of the display area.

Luminance : Brightness Detent point.

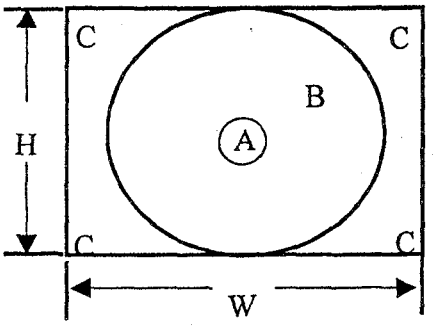
Contrast	20 Ft-L	5 Ft-L
Value	9300K+27MPCD x=0.283± 0.020 y=0.297± 0.020	9300K+27MPCD x=0.283± 0.020 y=0.297± 0.020

4-6-7 Misconvergence

Center area display (A):0.15mm (Max.)

Circuit area display (B):0.30mm (Max.)

Corner area display (C):0.35mm (Max)



<Conditions>
Display image : Crosshatch pattern mixed with R,G and B colors.
Convergence gauge: KLEIN CM7AG or equiva-lent.
Display area : Wx H 350x 262mm

4-6-8 Purity

Conspicuous mislanding shall not be visible within display area at a distance of 50 cm from CRT surface.

<Conditions>
Display image: White flat field

Luminance : Contrast max, Brightness Detent Point
Display area : 350x 262mm

4-6-9 White Uniformity

xa-xc≦± 0.015
ya-yc≦± 0.020
xa-xc: Deviation from center to corner
ya-yc: Deviation from corner to corner

<Conditions>
Display image: White flat field
Luminance : Brightness: < 0.06 FL
Contrast: Adj. to Max
Display area : 350x 262mm

4-6-10 Jitter

Invisible at a distance of 50 cm from CRT surface.

5. ENVIRONMENTS

5-1 Ambient temperature, humidity and altitude.

	Operating	Storage and shipment
Temperature	0~35 ℃	-40℃ ~ 70℃
Humidity	10~90 %	10 ~ 100 %
Altitude	3000m(Max.) (700-1060 m bar)	12000m(Max.) (36000ft)

*Non-condensation

6. POWER CORD

TUV approved power cord (Wall Type, HP. VDE MTW)
UK approved power cord (Wall Type, HP UK MTW)

7. SIGNAL CABLE

Mini D-Sub 15 Pin Male connector.

8. REGULATORY STANDARDS

8-1 Safety standards

The product complies to the following safety guidelines:

☐ EN 60950 and ISO 9241-3,-7,-8

8-2 Power management

The product complies to the following guidelines:

☐ VESA DPMS
☐ Energy (former E-2000)
☐ EPA Powermanagement
☐ TCO99

8-3 X-Ray

The product complies to the following guidelines:

☐ ROV 1987
☐ FDA DHHS 21 CFR Subchapter J

8-4 Ergonomic

The product complies to the following guidelines:

☐ TUV ERGONOMICS (MPRII, ISO9241-3 ,-7,-8)
☐ Gost Label
☐ TCO 99

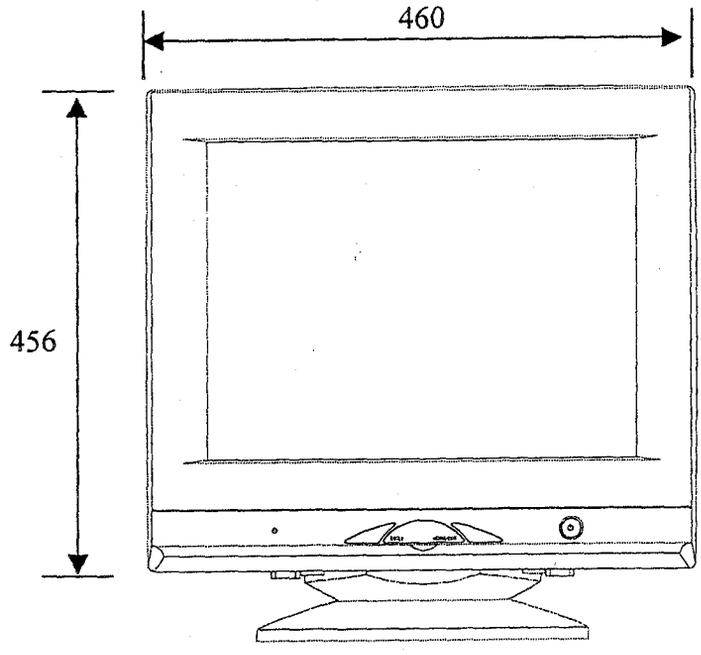
8-5 Radiation

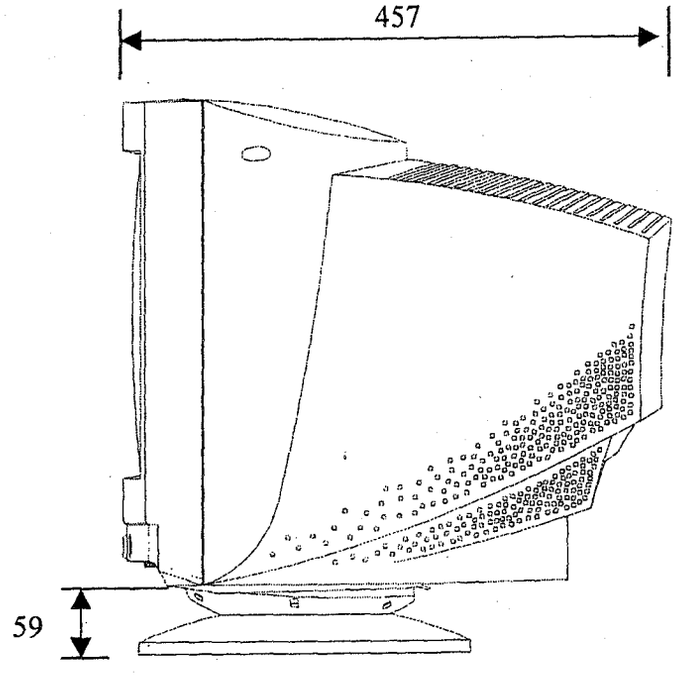
☐ MPR 1990:8+MPR 1990:10
☐ TCO 99

8-6 EMI

☐ CE (NE55022,EN50082-1,EN55024)
☐ FCC part 15 B/Class B

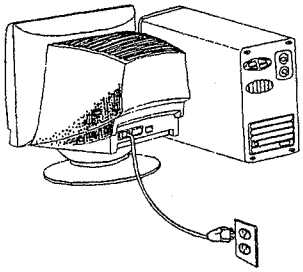
DIMENSIONS



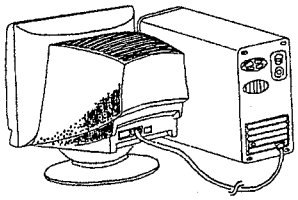


CONNECTING THE SIGNAL CABLE & THE POWER CORD

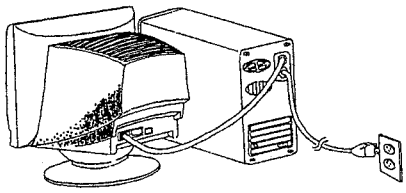
1. Plug the 15-pin signal cable connector into the video signal connection located at the rear panel of the system. Tighten the two screws on the cable connector.
2. Connect the power cord either into a AC outlet or into your computer's inlet. If the AC outlet in your location does not provide for this type of grounding plug, have the proper adapter installed for safe grounding.



Power Cord to AC Outlet



Signal Cable between Monitor and PC



Power Cord to PC'S Inlet

USER CONTROL

1.Power Switch

This turns the power on and off .Press to turn the power on, press again to turn the power off.

2.Pilot LED

When the power is turned on, the light is green; when the unit goes into standby, suspend or off, modes, the light turns to orange.

3.4 Operator Key

1) Press the **MENU/EXIT** button (4 in firure 1) to display the OSD menu on the screen.
2) Select the desired function icon using the OSD dial(3 in figure 1, see the following section "OSD Menu Icons").
3) Press the **ENTER** button (5 in figure 1) to activate the function.
4) Enter the desired value by turning the OSD dial.
5) To store the setting, press the **ENTER** button again.
   Repeat steps 2-4 to make further adjustments as needed.
6) The OSD menu will automatically disappear if no changes are made for more than 45 seconds (default setting). The current settings will be saved. You can also close it manually by pressing the MENU/EXIT button..

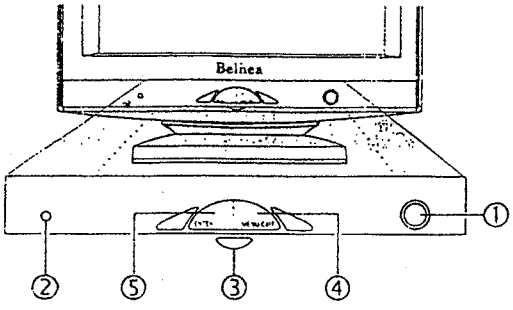


Fig 1

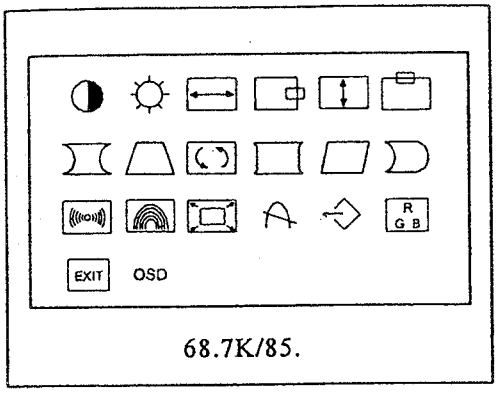


Fig 2

Symbol	Function	Process
	Brightness	Controls the picture brightness
	Contrast	Controls the picture contrast
	Horizontal position	Controls the horizontal position
	Width	Sets the picture width
	Vertical position	Controls the vertical position
	Height	Sets the picture height
	Pincushion	Eliminates pincushion distortion
	Trapezoid	Eliminates trapezoid distortion
	Rotation	Corrects a crooked image
	Corner	Eliminates corner distortion
	Parallel	Eliminates parallel distortion
	Pin. balance	Eliminates Pin-balance distortion
	H.Moire	Eliminates H.Moire
	V.Moire	Eliminates V.Moire
	Zoom	Controls the picture width and height in the meanwhile
	Degauss	Degausses the monitor
	Recall	Recall the preset value of preset mode
R GB	Color temperature	Control the color temperature
EXIT	Exit	Exit from OSD menu
OSD	OSD menu control	Control the position, size , color and language of OSD menu
	Change page	Return to main menu

ADJUSTMENT PROCEDURES

Check the monitor according to the Inspection Standards and, if necessary, follow the procedures below to adjust the monitor.

1. Power Supply

1-1 Input Voltage:AC110V~AC240V.
1-2 Input Frequency:60 +/- 3Hz /50 +/-3Hz.

2. Note

2-1 Turn the monitor so the screen of the CDT faces eastward.
2-2 Before adjustments, warm up the monitor for 30 minutes.
2-3 Mode setting refer to table 1.

3. Control Confirmation

3-1 The 1024× 768 68K mode signal will be used to check all display modes of the monitor.
3-2 To adjust the monitor, set the brightness control to its center position and the contrast control to its maximum position.

4. Adjustment Equipment (for reference only)

4-1 Degaussing Coil
4-2 Oscilloscope and Probe
4-3 Digital Voltmeter (Model: Fluke 8050A or equivalent)
4-4 Colour Analyzer (Model: Minolta TV-2030 or CA-100)
4-5 Ruler (45 cm)
4-6 High-Voltage Probe (Model: Fluke 80K-40)
4-7 PC: PII / PIII / P4 or equivalent
4-8 Chroma (Model: 1000, 2000 or 2130, 2135)
4-9 Power meter (model:2533 or equivalent)
4-10 Screw driver "-" & "+"

Table 1 for mode setting

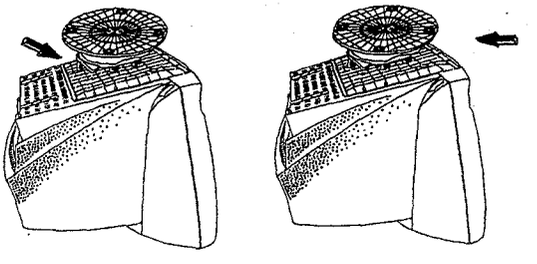
Following thimings are preset:

Mode	Card Item	Freq. H. KHz	Freq. V. KHz	Resolutions
1	VESA	31.469	59.941	640 x 480
2	VESA	37.5	75	640 x 480
3	VESA	31.468	70	720 x 400
4	VESA	46.875	75	800 x 600
5	VESA	53.674	85.061	800 x 600
6	VESA	60.023	75	1024 x 768
7	VESA	68.667	85	1024 x 768
8	VESA	91.146	85	1280 x 1024
9	VESA	93.75	75	1600 x 1200

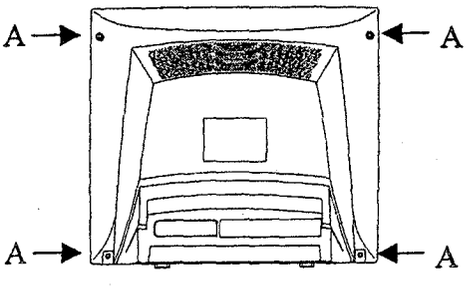
5. Disassembly for Rear Cabinet

5-1 Unloading

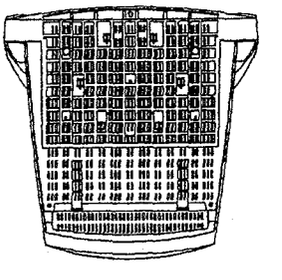
Gently press at the clip with one hand, while pulling the T/S base towards the rear of the cabinet with the other hand. The T/S base should now come off of the monitor.



5-2 Remove 4 screws(A) from the rear cabinet then remove the rear cabinet.

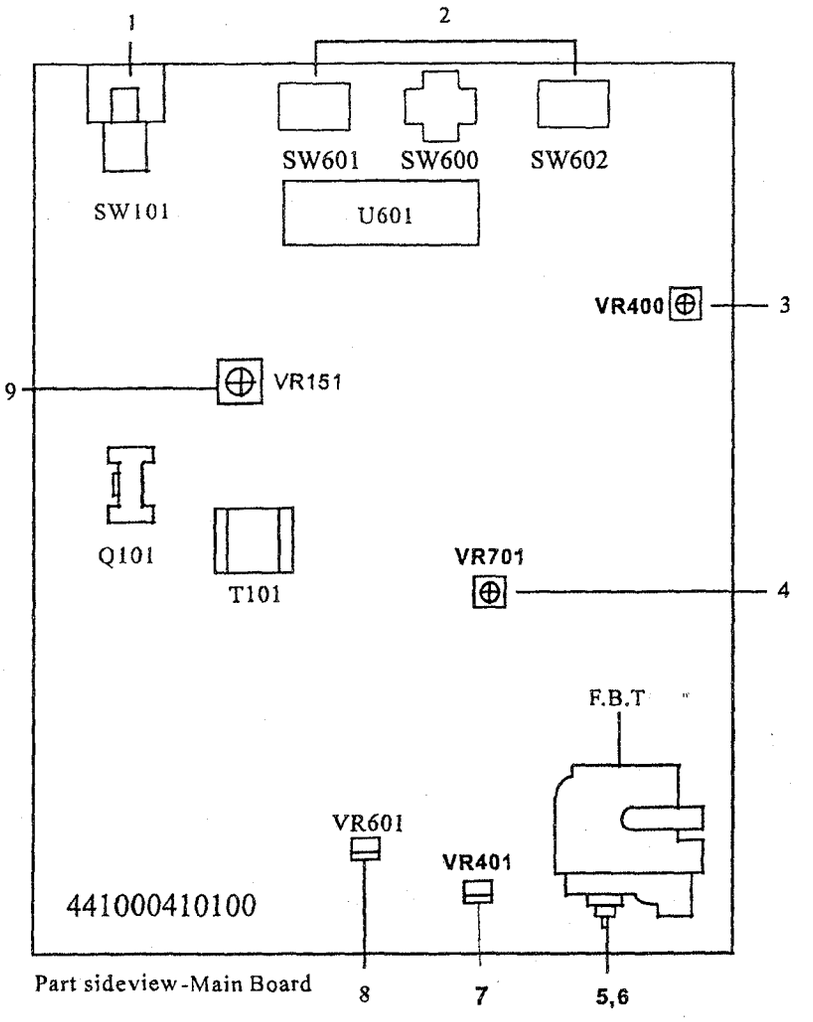


Bottem side view



Back side view

6. Service Adjustment Control Locations



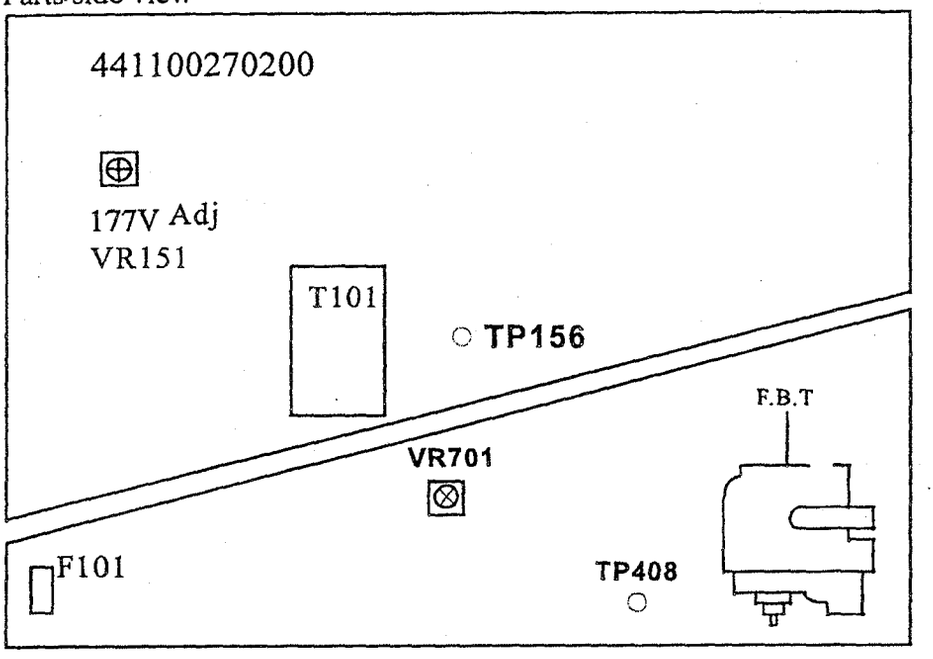
1. Power switch (SW101)
2. OSD Function key
   MENU (SW601)
   ACB (SW602)
   ENTER (SW603)
3. Sub. H. Size (VR400)
4. H.V. Voltage (VR701)
5.6. Focus
7. Sub. Brightness (VR401)
8. ABL (VR601)
9. B+ (VR151)

7. Adjustment

7-1 B+Voltage Adjustment:

-Apply the mode 1 signal with a full white pattern.
-Apply 220V AC or 110V AC to the unit.
-Set the Brightness and the Contrast to the Max, the H-Width to 350x 262mm.
-Put the DVM probe between TP156 and GND.
-Adjust the VR151 until TP156 reaches 185V VDC +/- 0.1V.
-Confirm the voltage across C171 to be 80 VDC+/3V.
-Confirm the voltage across C131 to be-12.5V +/- 1V.
-Confirm the voltage across C151 to be 6.3 VDC +/- 0.2V.
-Put the probe between the TP408 and GND.
-Adjust the VR701 until TP408 reaches -179 VDC +/- 0.5V.

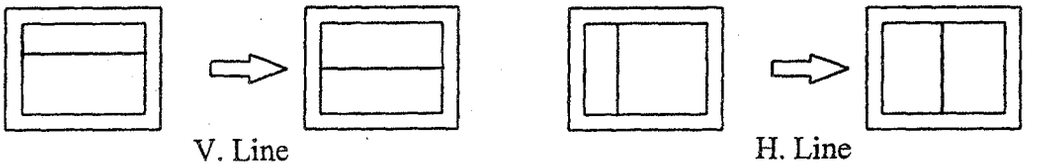
Parts side view



7-3 H. Line and V. Line Adjustment:

-Apply all mode signal with a 10x 8 crosshatch pattern.

-Adjust the Up/Down key to equalize the length of each square from the center to the Right/Top edge and from the center to the right /bottom edge.

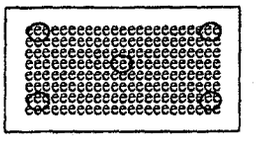


7-4 X-Ray Protection Test:

-Short TP402 and TP404(Install 3k ohm tool), Check if the protection circuit works.

-Remove the tool and Restart the unit.

7-5 Focus Adjustment:



-Apply the mode 5 signal with the text pattern.

-Set the brightness to the raster just disappears.

-Set the contrast to 25FL.

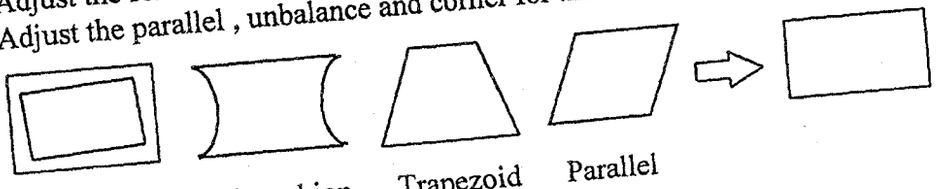
-Make the corner sections of the screen optimum by turning focus VR1 on the F.B.T.

-Make the center sections optimum by turning focus VR2 on F.B.T.

-Repeat 1,2 to make it optimum.

7-6 White Balance Alignment : (Warm Up 30 Minutes)
-Degauss the screen using the degaussing coil.
-Apply the mode 7 signal with the video cut off pattern.
-Set the contrast to the Max, and the brightness to the max.
-Put the color analyzer probe on the screen center, adjust the VR(401) until the "Y" is 0.8~1.0Ft-L.
-Adjust the OSD "g" fix at center(10%),after adjusting the OSD "r","b" to x=0.283 ± 0.005, y=0.297± 0.005.
-Apply the white-square-box pattern (50mm× 50mm).
-Set the contrast and the brightness to the 10FL.
-Adjust the R gain and G gain to x,y value at 9300° K ,x=0.283± 0.005,y=0.297 ± 0.005,and copy the 9300°K value copy to C3 (R.G.B).
-Adjust the sub-contast to Y=40FL± 5FL (Con. Set to Max, Brightness set to OSD value "80").
-Apply the pattern to full white.
-Adjust the brightness VR601 until to Y=33FL± 1FL.

7-7 Trapezoid & Pincushion & Rotation Adjustment:
-Apply the all mode signal with a crosshatch pattern.
Adjust the OSD control up / down key.
-Adjust the V-Size to be 262mm and adjust V-Phase to center.
-Adjust the H-Width to be 350mm and adjust the H-Phase to center.
-Adjust the Pincushion for the best result.
-Adjust the Trapezoid for the best result.
-Adjust the Rotation for the best result.
-Adjust the parallel , unbalance and corner for the best.



Rotation Pincushion Trapezoid Parallel

7-8 Size, Phase, Pincushion, H-Linearity, V-Linearity, Rotation and QC Check:
-Apply all mode signal with a crosshatch pattern.
-Set the H-size to 350mm, the V-size to 262mm. Check mode 1-6 if the size is off by +/- 5mm, the pincushion +0.5mm and -2mm range, Rotation +/- 1mm, Linearity under 5 %.

7-9 Power Saving Test:
-Standby Mode:Open the H-Sync, check if the power is under 15W.
-Suspend Mode:Open the V-Sync, check if the power is under 15W.
-Off Mode:Open the H-Sync and V-Sync, check if the power is under 5W.

8. PURITY ADJUSTMENT

The CRT is an ITC assembly, however, here is the explanation for readjustment just in case. If color shading is apparent, make the following adjustment.

8-1

8-1-1 Verify that no unusual magnetic fields are near the Display unit (magnetic screwdrivers, table magnets, etc.) If possible, use a wooden workbench for this procedure.

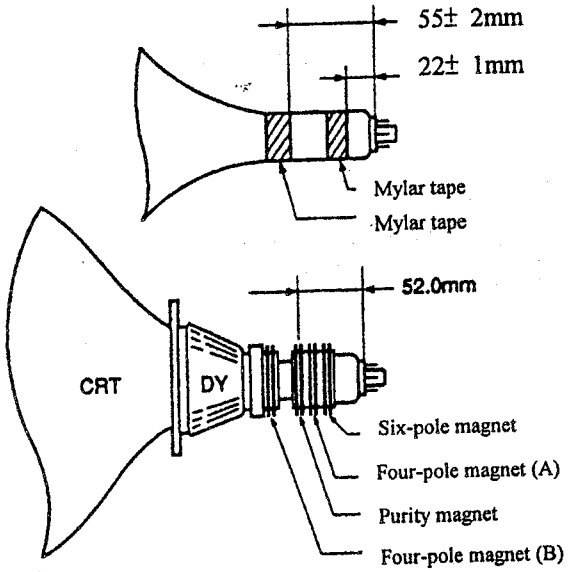
8-1-2 Degauss the magnetism of chassis and CRT with external degaussing coil.

8-1-3 Adjust the purity magnet until each of the red, green and blue channels is free of color shading.

Make the following adjustment if color shading cannot be corrected by the above, or if the CRT or deflection yoke has been replaced.

8-2

8-2-1 Keep the convergence yoke and deflection yoke in the positions shown below.



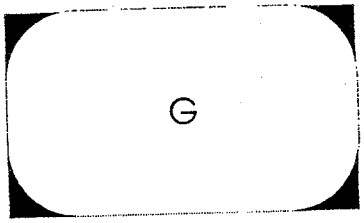
8-2-2 Make sure that this adjustment is done later than 30 minutes after power on .

8-2-3 Degauss the magnetism of chassis and CRT with an external degaussing coil.

8-2-4 Verify that static convergence is roughly matched . If it is misaligned, adjust static convergence of Red color and Blue color with Four-pole magnet A.
For this adjustment Four-pole magnet B which is with deflection yoke must be put together.

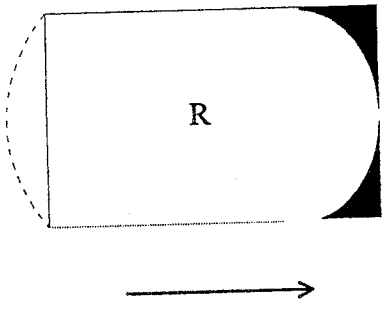
8-2-5 Remove the wedge from the deflection yoke and pull the deflection yoke fully to the front.

8-2-6 Display green color solely with the signal generator.
Adjust the purity magnet so that the center of the screen displays a pure green disk. Slide the deflection yoke rearward until the four corners shaded and check its area's uniformity.



8-2-7 After the adjustment of step 5, readjust the static convergence if some gap was found.
Static convergence alignment for this step is to be performed with Four-pole magnet A and Six-pole magnet.

8-2-8 Display red disk. Adjust the purity magnets so as that red disk is as the center of the screen simultaneously. If red is shifted, move its position in the opposite direction.



8-2-9 Display Green again.
Slide the deflection yoke rearward until the screen appears green on the whole, and fasten it there.

8-2-10 Confirm purity in each direction by rotating the set to direction of East, West, South and North after degauss by external degaussing coil.

8-2-11 If magnetism remains even after the adjustment, use the compensation magnet to obtain purity.

The final confirmation method for purity
In the natural magnetic field, rotate the monitor in the direction of East, West, South and North.
Earth's magnetic field may cause magnetism on the monitor. Confirm that the automatic degaussing circuit built in the monitor can erase the amount of magnetism which was introduced with above rotation.

9. CONVERGENCE ADJUSTMENT

The CRT is an ITC assembly, however, here is the explanation for readjustment just in case.

9-1 Make sure that this adjustment is done later than 30 minutes after power on. Check general ability coarse adjustment and purity adjustment finished.

9-2 Degauss the magnetism of chassis and CRT with degaussing coil. (CRT board also).

9-3 Apply mixed crosshatch signals of red and blue from the signal generator. Nudge the deflection yoke to equal its inclination up and down, right and left with a

temporary wedge between CRT and the top of the yoke.

9-4 Match the red and blue images at the center of the screen by rotating the Four-pole magnet A (See STEP-1 in figure for examples). For this adjustment Four-pole magnet A should be put together.

9-5 Apply mixed crosshatch signal of red, blue and green from the signal generator.

9-6 Match the red, green and blue images at the center of the screen by rotating the Six-pole magnet. (See STEP-2 in figure for examples).

9-7 If lines are twisted either lefthand or righthand (See the STEP-3 in figure for examples) perform the following:

a. Use Four-pole magnet B to shift convergence of horizontal lines by 5 to 6 mm at the center of the screen. (For twisted lefthand lines, shift blue line downward and red line upward. For twisted righthand lines, shift red line downward and blue line upward. Do not shift convergence of vertical lines.)

b. Then realign convergence with Four-pole magnet A.

9-8 Loosen the deflection yoke fastening screw and gently nudge the yoke up and down to achieve the best overall convergence on the edges of the screen (See STEP-4 in figure for examples).
Insert wedge at the top of the deflection yoke so that the convergence will not deviate due to an unsteady deflection yoke.

9-9 Gently nudge the yoke from side to side to achieve the best overall convergence on the edges of the screen (See STEP-5 in figure for examples).
Insert wedges at the left side and right side of the deflection yoke so that the convergence will not deviate due to an unsteady deflection yoke. (Do not apply silicon adhesive to the wedges to prevent them from slipping out).

9-10 Check that the image is horizontal.
If needed, rotate the deflection yoke.

9-11 Recheck the purity adjustment. If purity was adversely affected repeat the purity adjustment, then recheck convergence when finished.

9-12 Retighten the deflection yoke fastening screw. Do not overtighten the screw, as this can damage the CRT.
Tightening torque: 20± 2 kgf.cm

9-13 Align the horizontal line convergence at the center of the screen with the Differential coil (See STEP-6 in figure for examples).

9-14 Align the horizontal line convergence at the corner and of the screen with the Differential resistor VR-YV. (See STEP-7 in figure for examples.)

9-15 Align the center vertical line convergence at the corner of the screen with the Vertical Isotropic Astigmatism resistor VR-YHC (See STEP-8 in figure for examples).

9-16 Align the center vertical line convergence at the corner of the screen with the vertical ISO tropic astigmatism resister VR-YH (See step-9 in figure for examples).

9-17 Recheck convergence at the center of the screen. If needed, realign with the Four-pole magnet A and the Six-pole magnet.

9-18 Insert wedges as shown is STEP-10 of figure (at the top, bottom, and right side of the deflection yoke). Secure them with silicon adhesive and polyester tape. Remove any temporary wedges while keeping convergence aligned.

9-19 If the convergence on the fringe areas in still not acceptable, place one or more Permalloys around the funnel to achieve the best effect. Then press these Permalloys onto the funnel. Verify convergence around all edges of the screen.

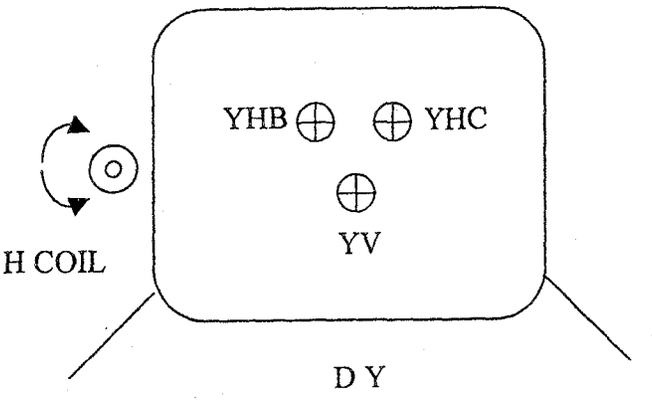
(See STEP-11 in figure for examples).

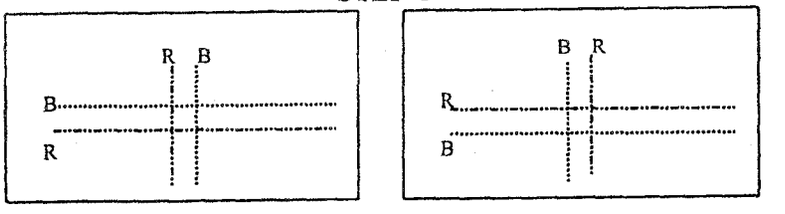
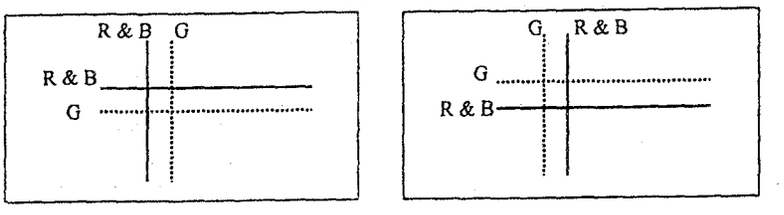
NOTE

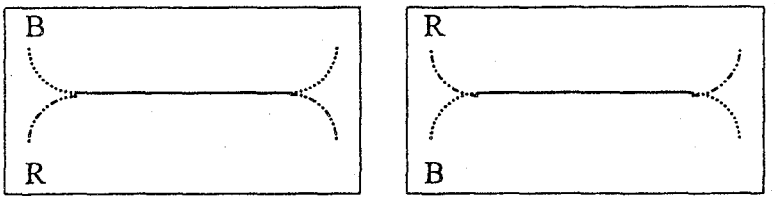
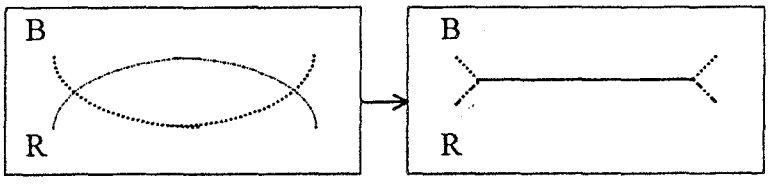
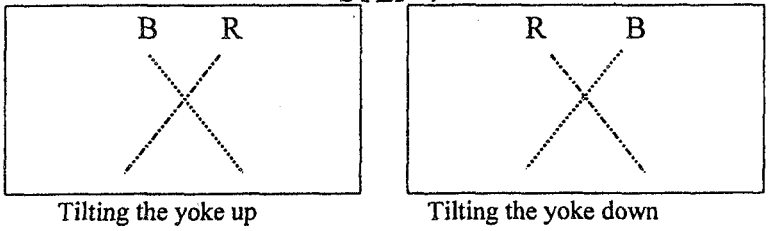
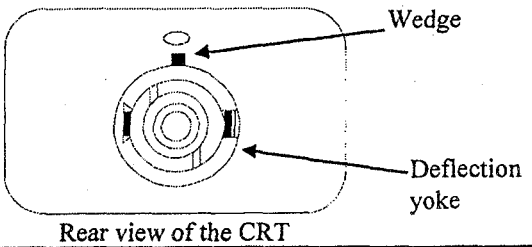
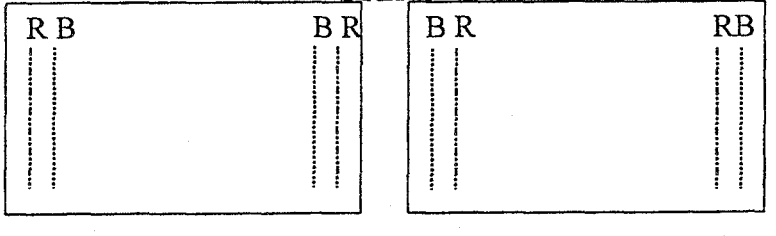
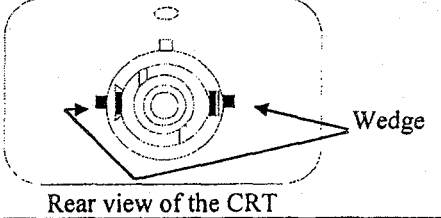
In the above step, do not place the Permalloys closer than 20 mm from the HV anode cap. Do not tape them over any paper labels or secure them with silicon adhesive.

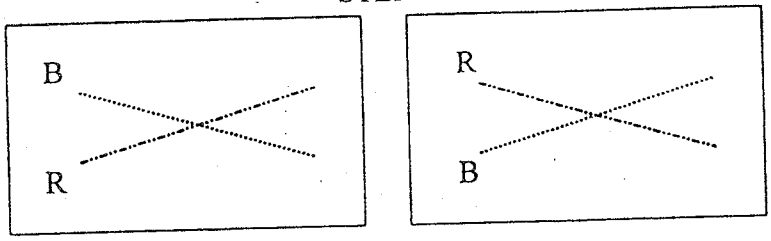
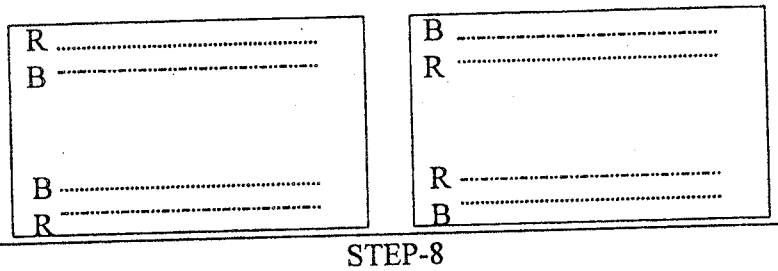
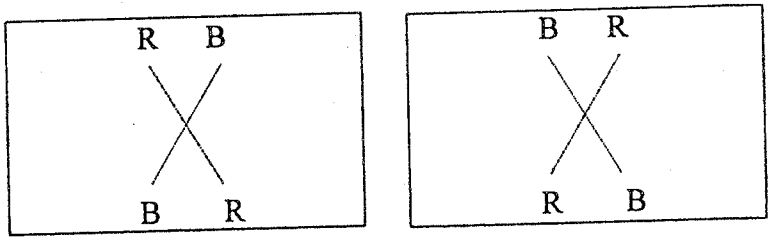
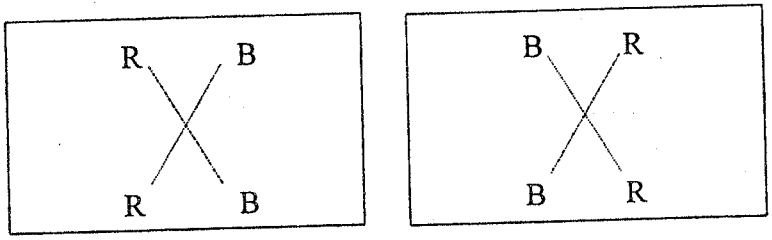
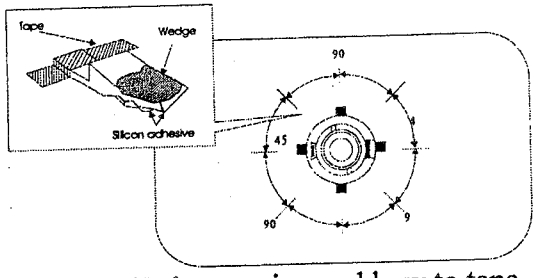
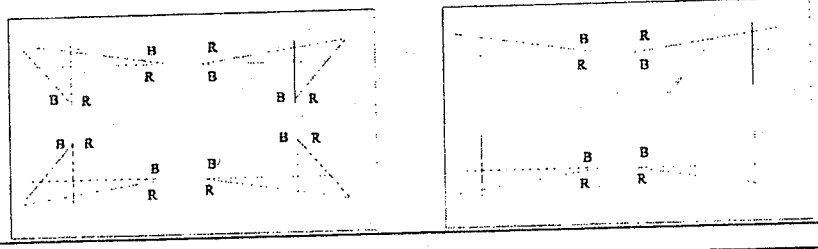
9-19 After completion of adjustment, apply locking paint to the movable portions of the deflection and convergence yokes to secure them.

9-20 Make adjustment so that the value of white window pattern from the signal generator is below that under the condition of 100 cd/m^2 brightness at the standard condition.



Adjustment part	Misconvergence pattern Wedge inserting position
Four-pole magnet A	STEP-1 
Six-pole magnet	STEP-2 

Four-pole magnet B	STEP-3  Beams are twisted lefthand　　Beams are twisted righthand for example (lefthand)  with four-pole magnet B　　with four-pole magnet A
Deflection yoke	STEP-4  Tilting the yoke up　　Tilting the yoke down  Rear view of the CRT
Deflection yoke	STEP-5  Tilting the yoke left　　Tilting the yoke right  Rear view of the CRT

Differential coil	STEP-6 
Differential resistor VR-YV	STEP-7 
Differential resistor VR-YHc	STEP-8 
Differential Resistor VR-YHB	STEP-9 
	STEP-10  Wedge spacing and how to tape
Permalloy	STEP-11 

CAUTION FOR SERVICING

When servicing or replacing the CRT, high voltage somethimes remains on the anode. So, completely discharge high voltage before servicing or replacing the CRT so as to prevent a shock to the service person.

CRT Anode Discharge

1. When you check the CRT anode or replace the CRT, discharge the CRT anode to the external conductive coating (aquadag) of CRT, especially when checked right after **power turn-off.**

2. Ground one end of a jumper wire which has a resistor (30 kV < resisting pressure 100 MΩ) and connect the other point to the CRT anode.

Note: Grounding must be done first.

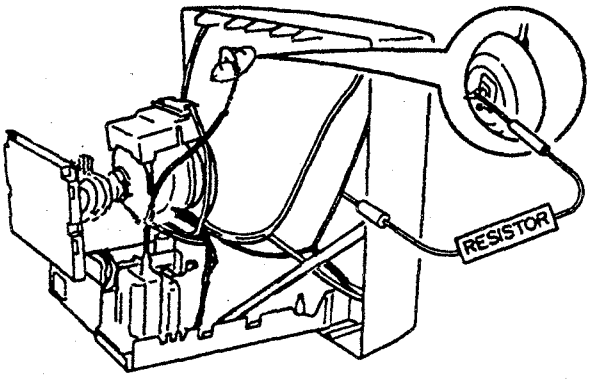
This model has a section that does not share a common ground with the power supply section. The different sections are referred to as the hot section and the cold section in the precautions below.

1. Do not touch the hot section and the cold section at the same time. You may be hit by an electric shock.

2. Do not short the hot section to the cold section. This could blow the fuse or damage parts.

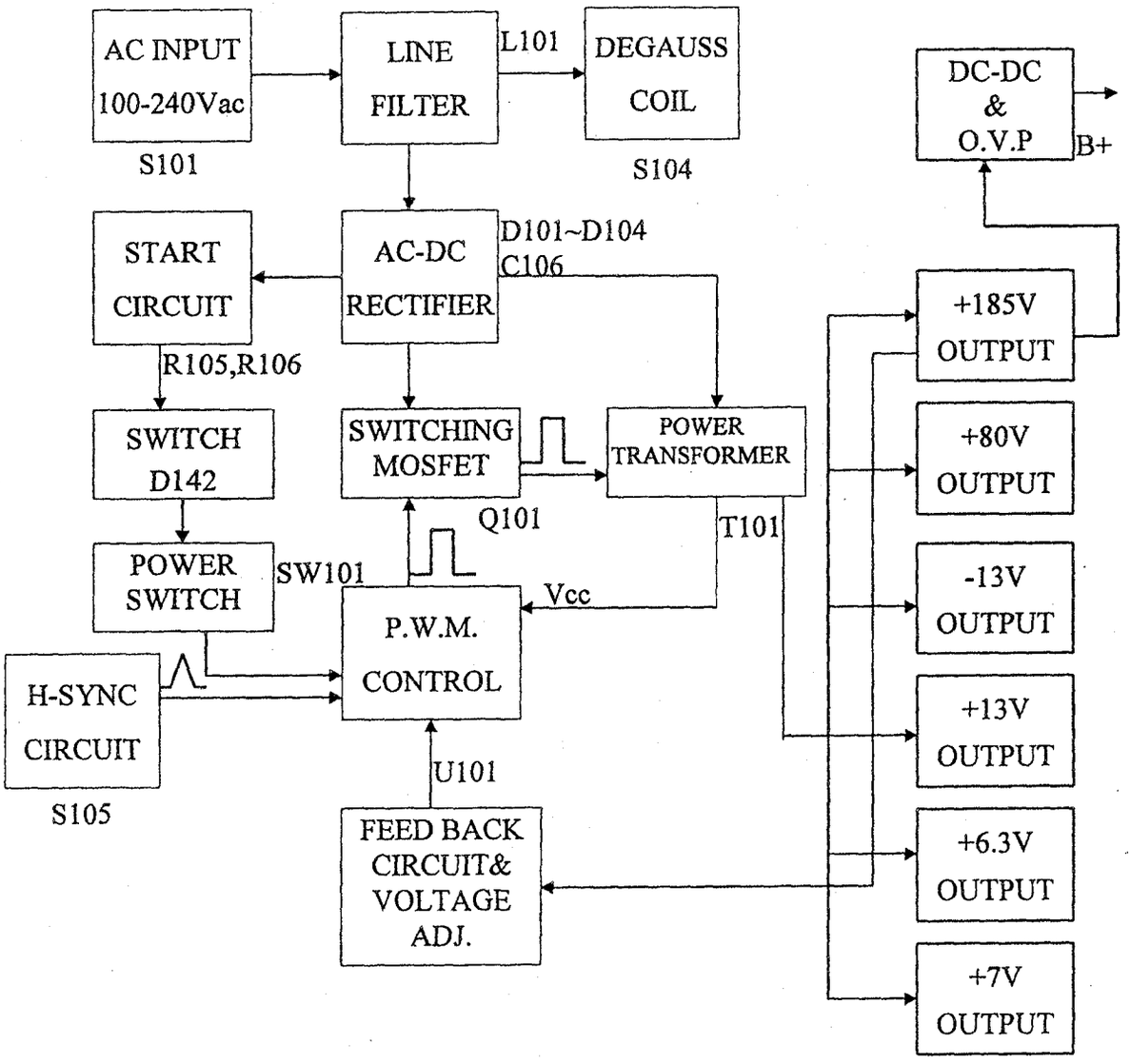
3. Never measure the hot section and the cold section at the same time when using tools such as oscilloscopes or multimeters.

4. Always unplug the unit before beginning any operation such as removing the chassis.

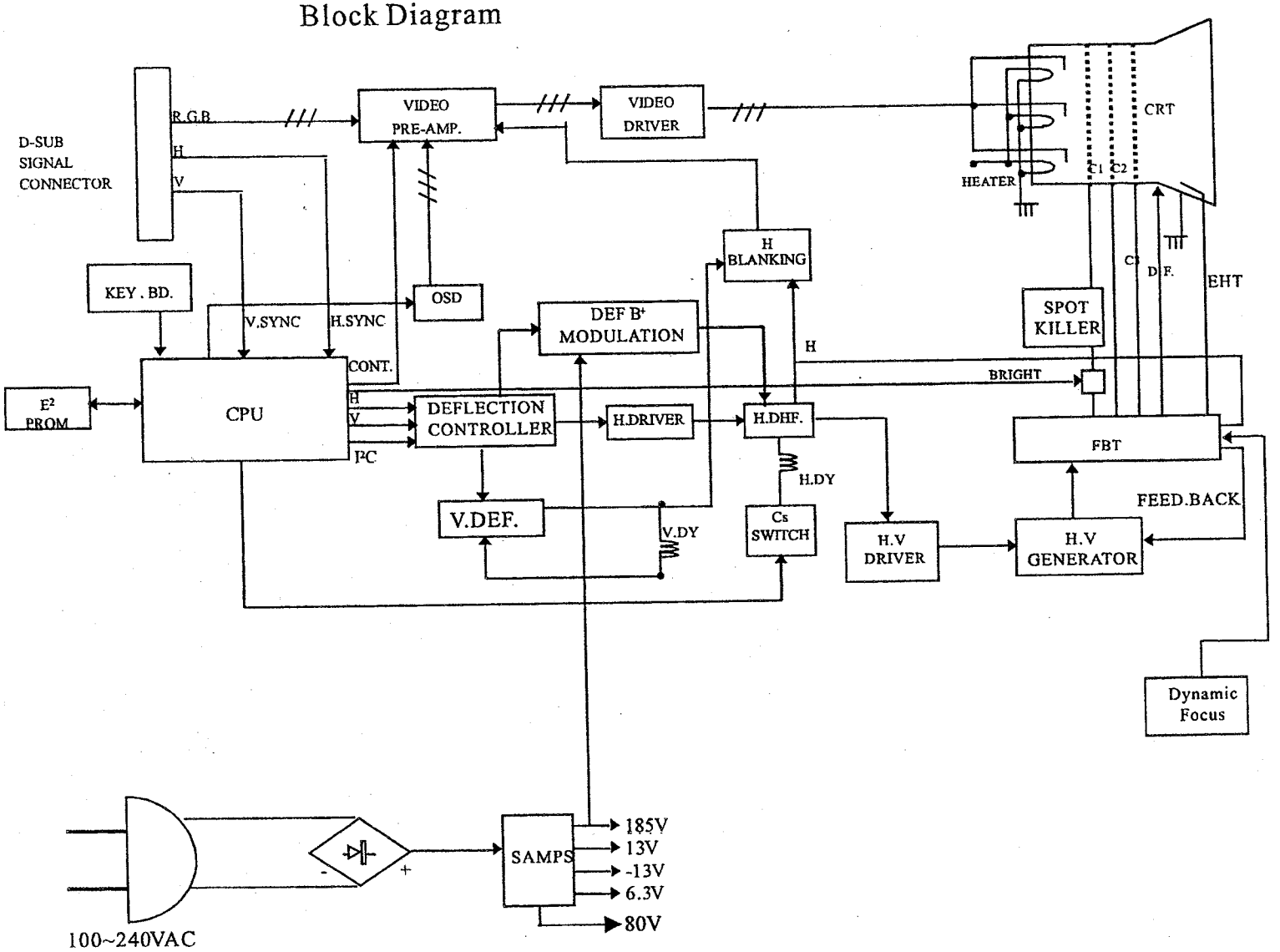


BLOCK DIAGRAM

1.POWER SUPPLY BLOCK DIAGRAM



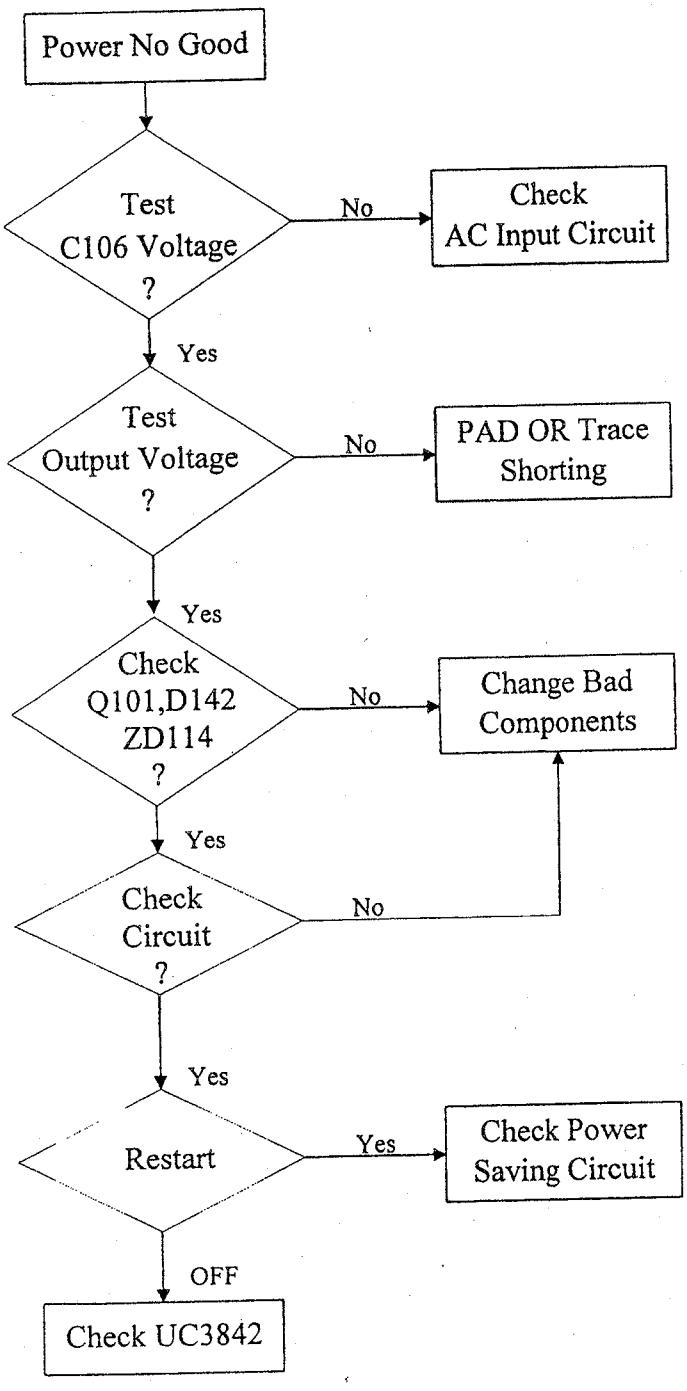
Block Diagram



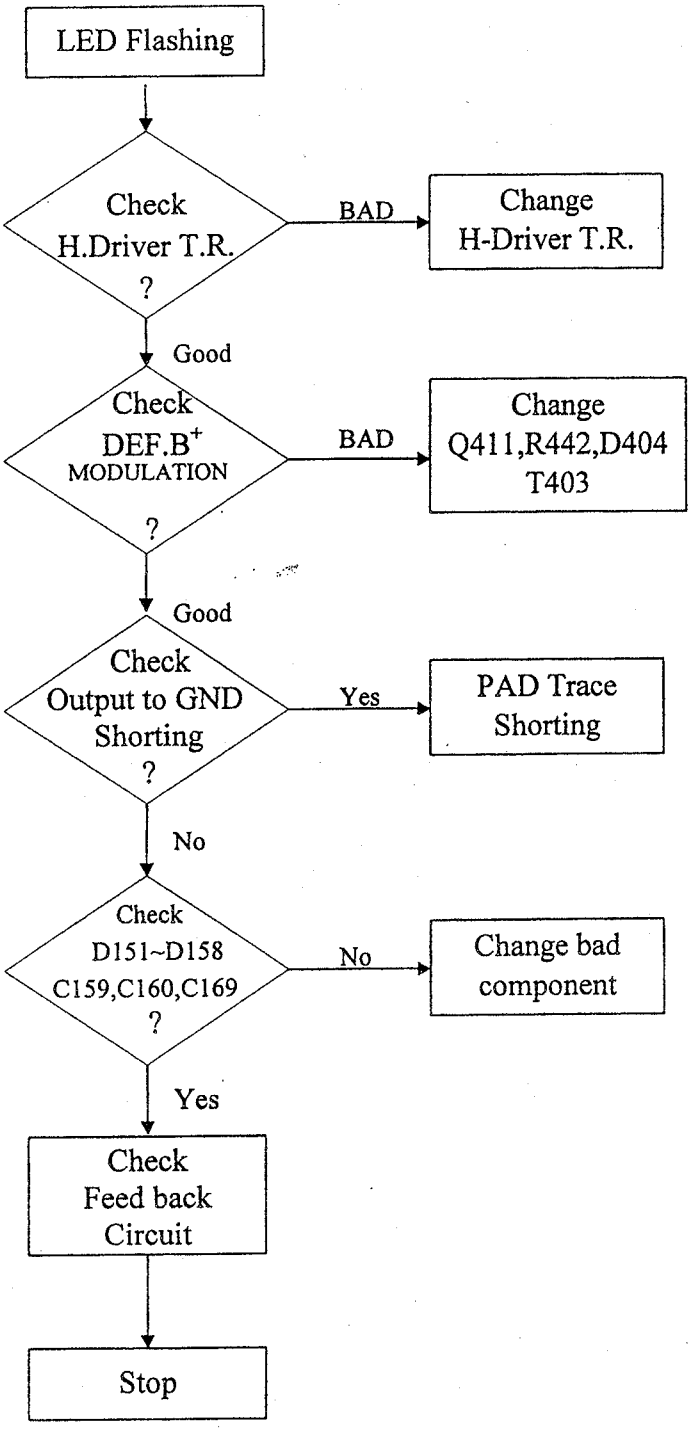
TROUBLE SHOOTING CHART

A. POWER SUPPLY CIRCUITS

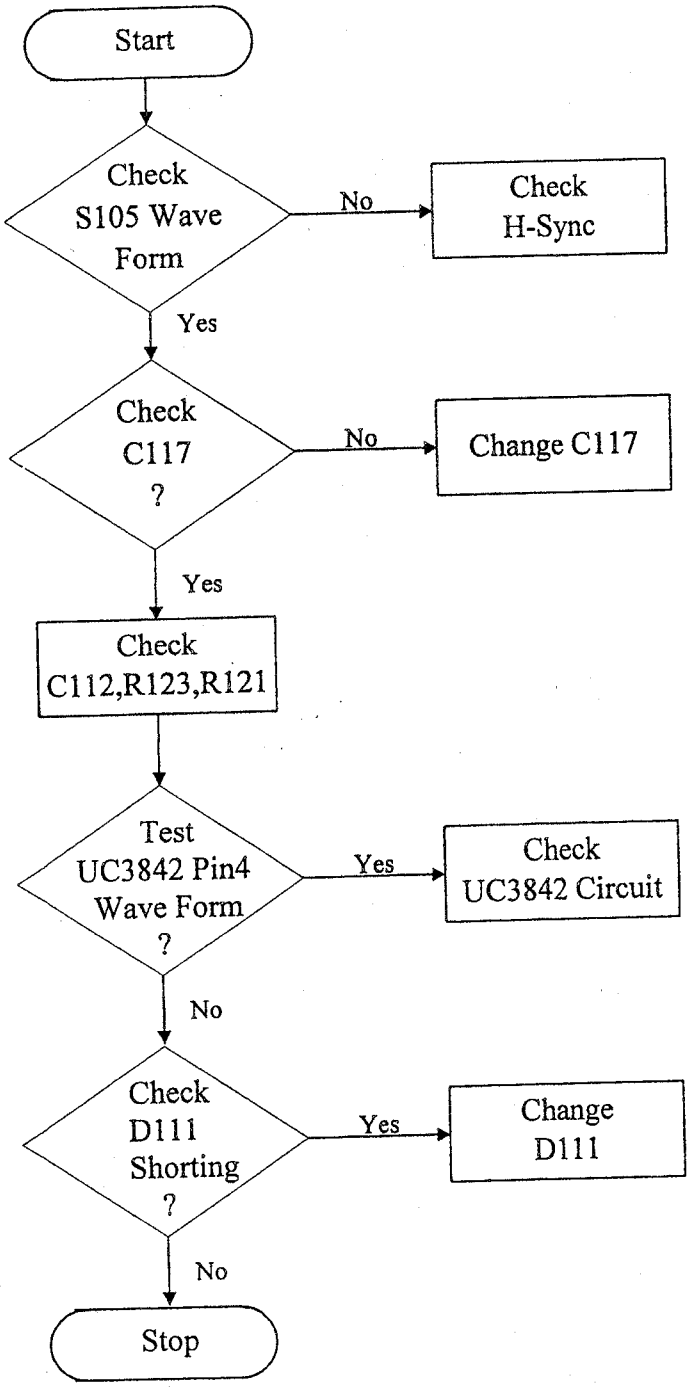
a. POWER NO GOOD



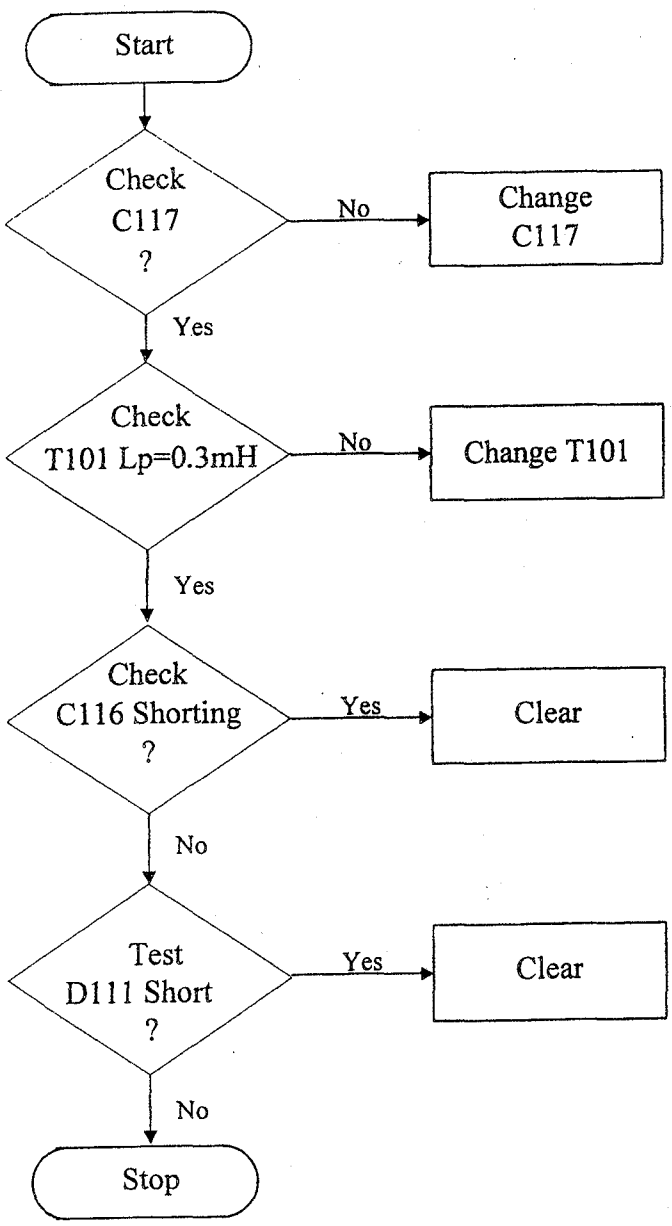
b. LED FLASHING



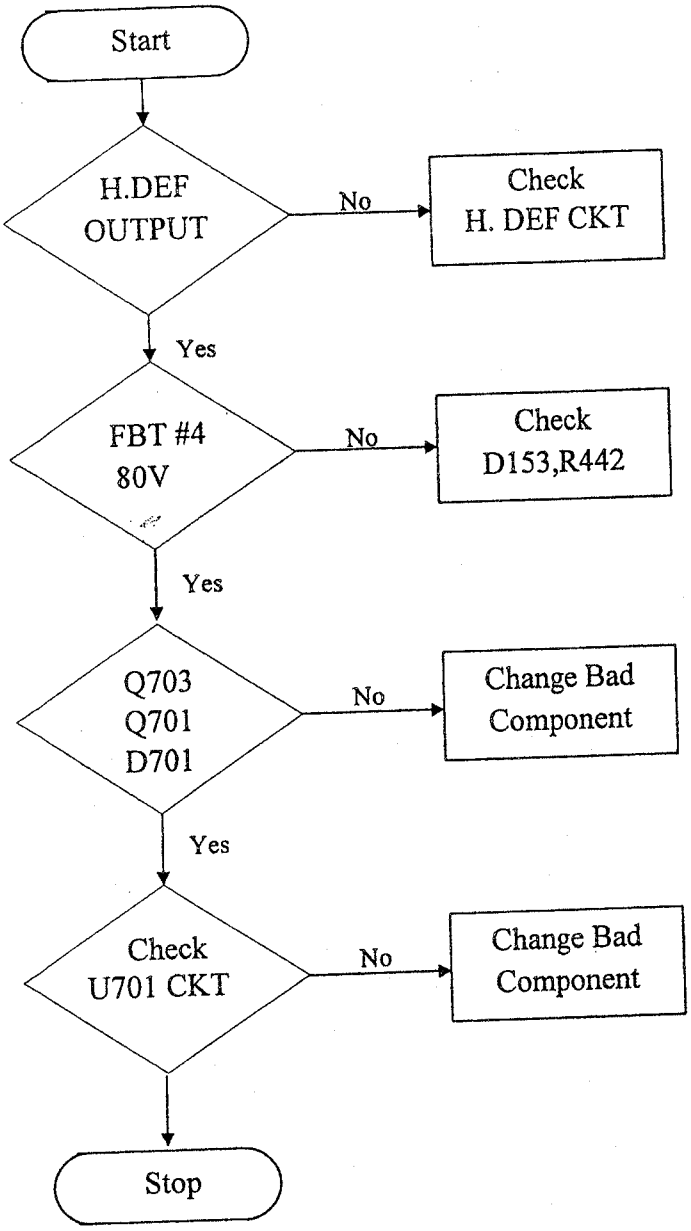
c. H-SYNC Interference



d. NOISE

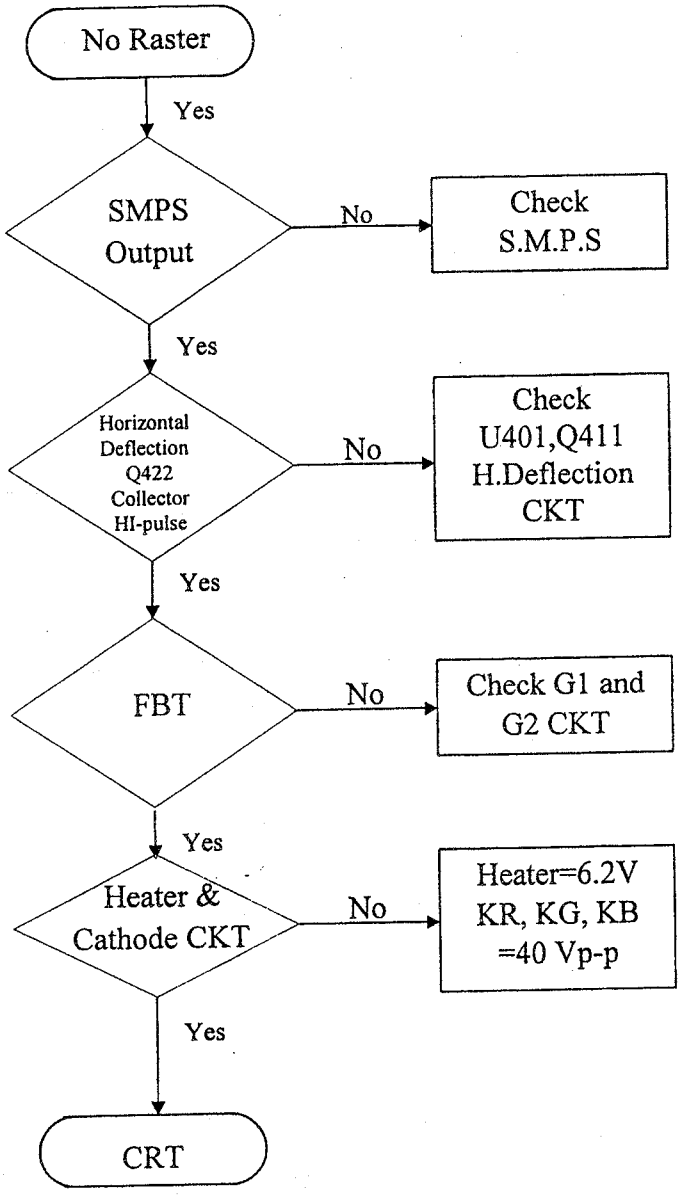

Start
Check C117 ?
No
Change C117
Yes
Check T101 Lp=0.3mH
No
Change T101
Yes
Check C116 Shorting ?
Yes
Clear
No
Test D111 Short ?
Yes
Clear
No
Stop

e. NO HIGH VOLATGE

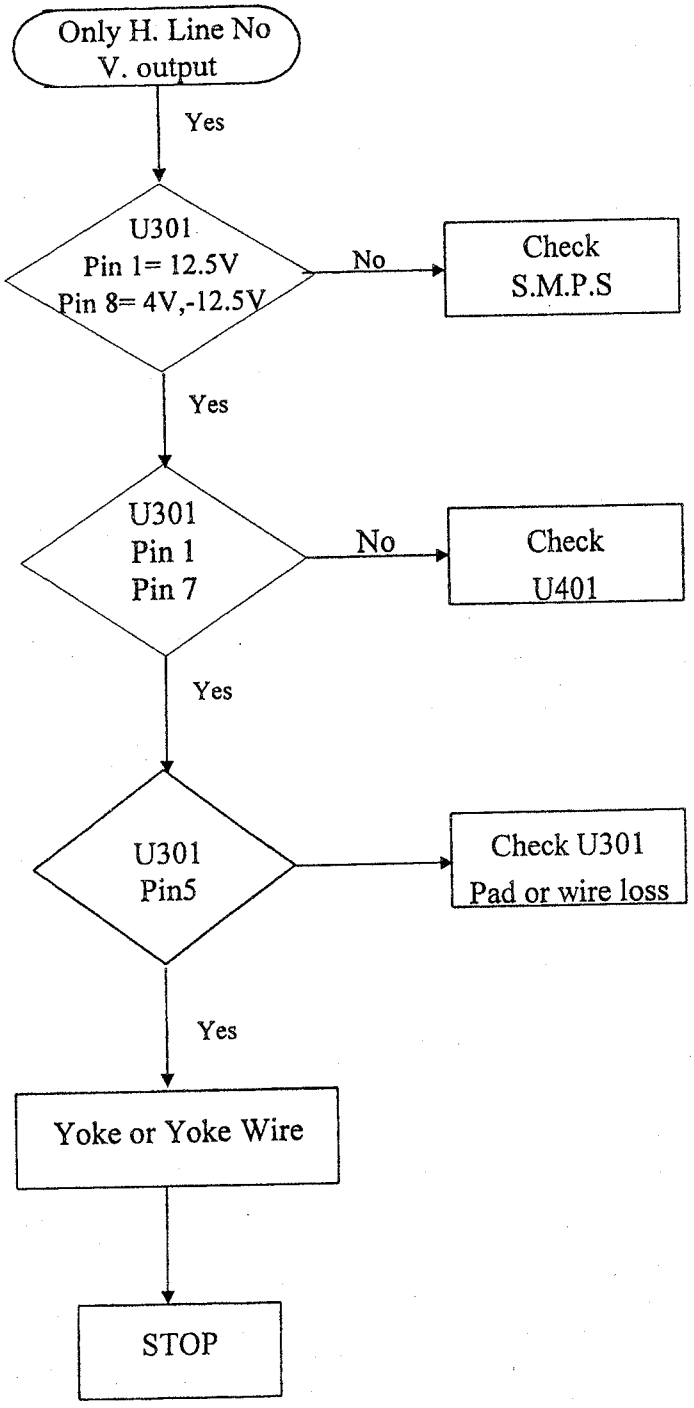


B. VIDEO CIRCUIT

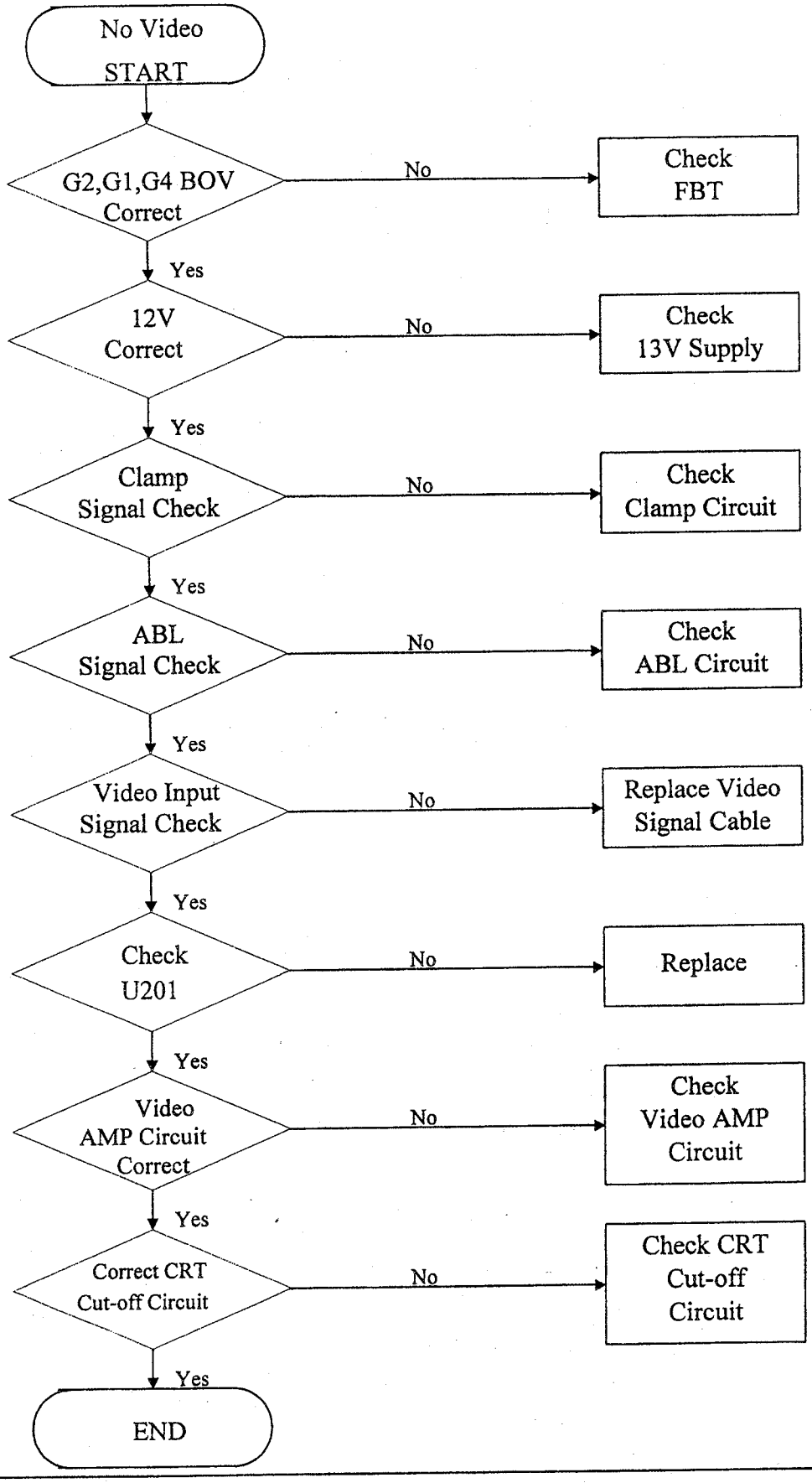
a. NO RASTER



b. ONLY H.LINE NO V. OUTPUT



c. NO VIDEO

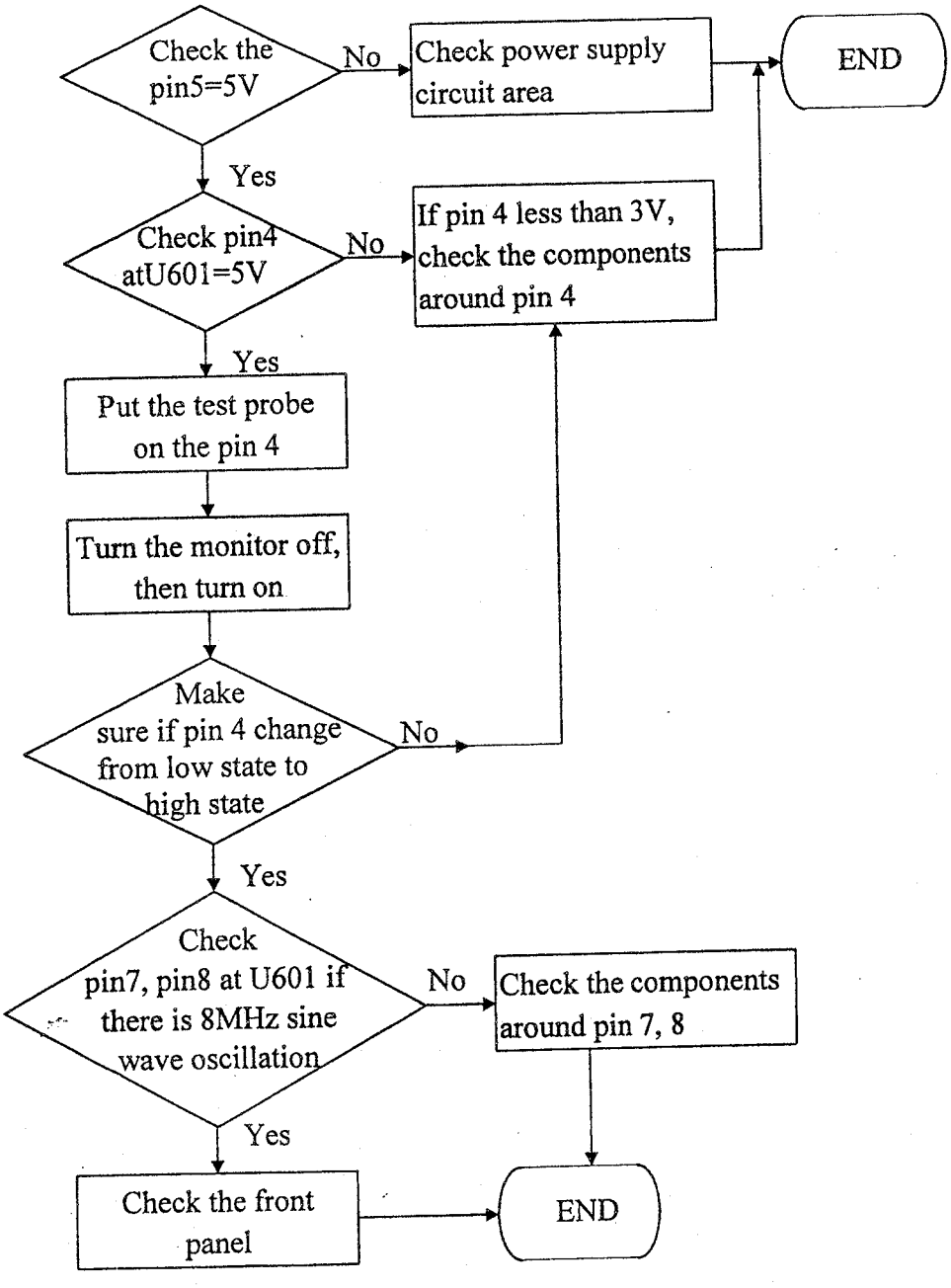

No Video
START
G2,G1,G4 BOV
Correct
No
Check
FBT
Yes
12V
Correct
No
Check
13V Supply
Yes
Clamp
Signal Check
No
Check
Clamp Circuit
Yes
ABL
Signal Check
No
Check
ABL Circuit
Yes
Video Input
Signal Check
No
Replace Video
Signal Cable
Yes
Check
U201
No
Replace
Yes
Video
AMP Circuit
Correct
No
Check
Video AMP
Circuit
Yes
Correct CRT
Cut-off Circuit
No
Check CRT
Cut-off
Circuit
Yes
END

C. CPU Service Procedure

1.The CPU is malfunction.
2.The OSD is malfunction.
3.The data message could not be stored by E2PROM.
4.The CS signal from CPU is not working properly.
5.During mode change, there is a annoying picture appear on screen.

Solutions:

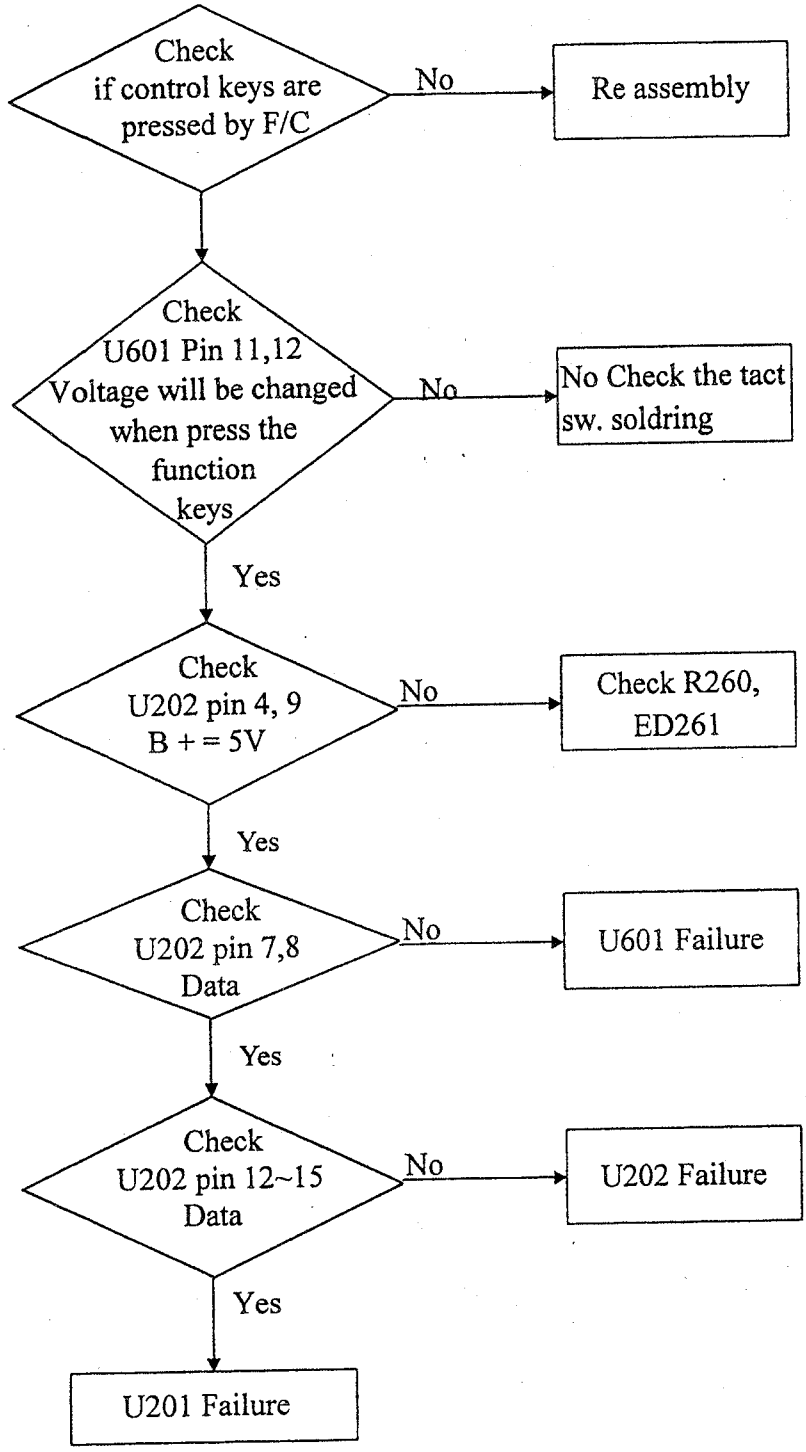
1.The CPU is malfunction


Check the pin5=5V
No
Check power supply circuit area
END
Yes
Check pin4 atU601=5V
No
If pin 4 less than 3V, check the components around pin 4
Yes
Put the test probe on the pin 4
Turn the monitor off, then turn on
Make sure if pin 4 change from low state to high state
No
Yes
Check pin7, pin8 at U601 if there is 8MHz sine wave oscillation
No
Check the components around pin 7, 8
Yes
Check the front panel
END

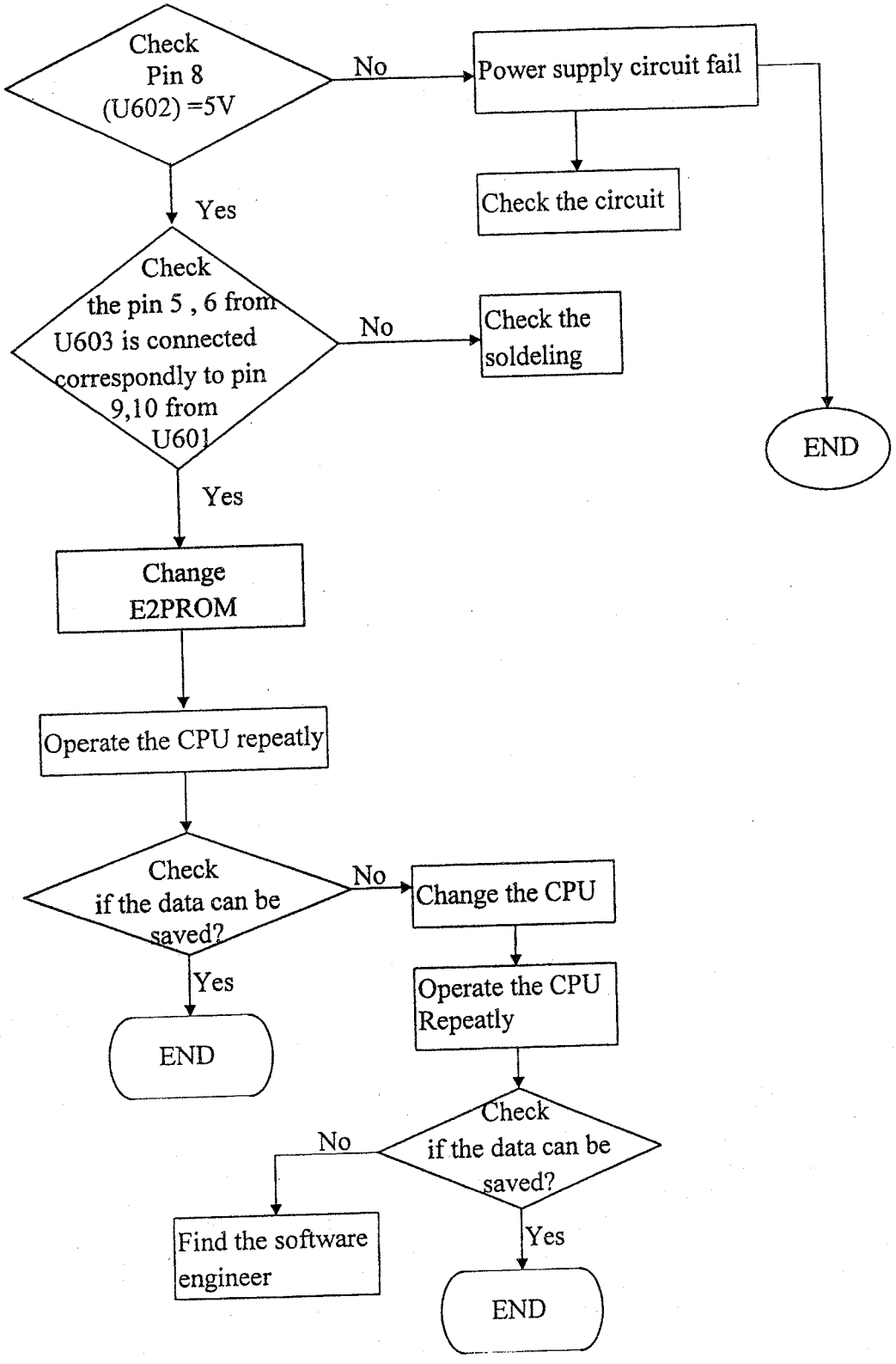
Note:

The CPU mal function is usually caused by the pin 4 not turning to low at power on (this step will initialize the CPU address to ZERO), and then pin 4 return to high state (at least 3V), for the CPU to operate normally.

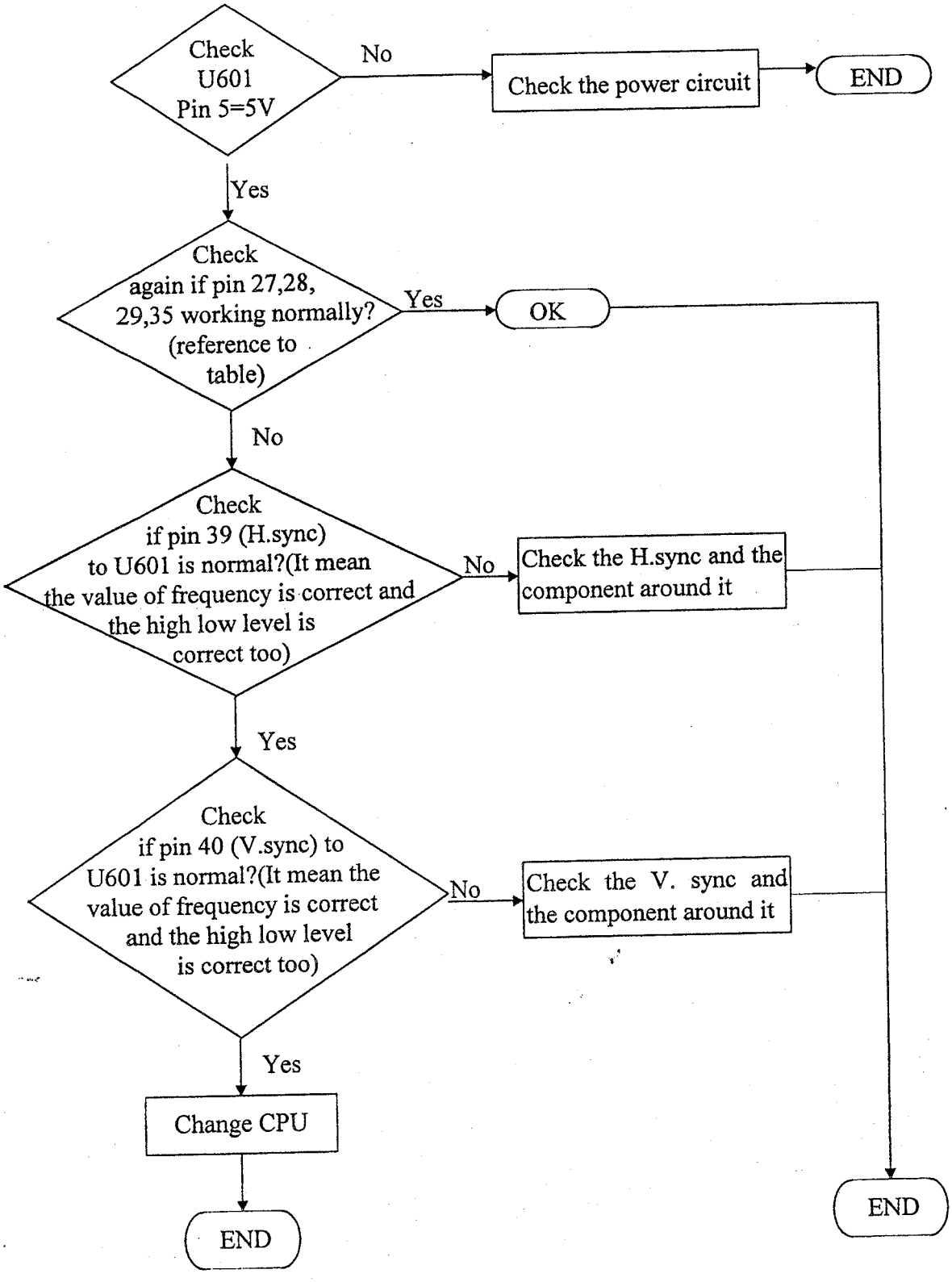
2. The OSD is malfunction



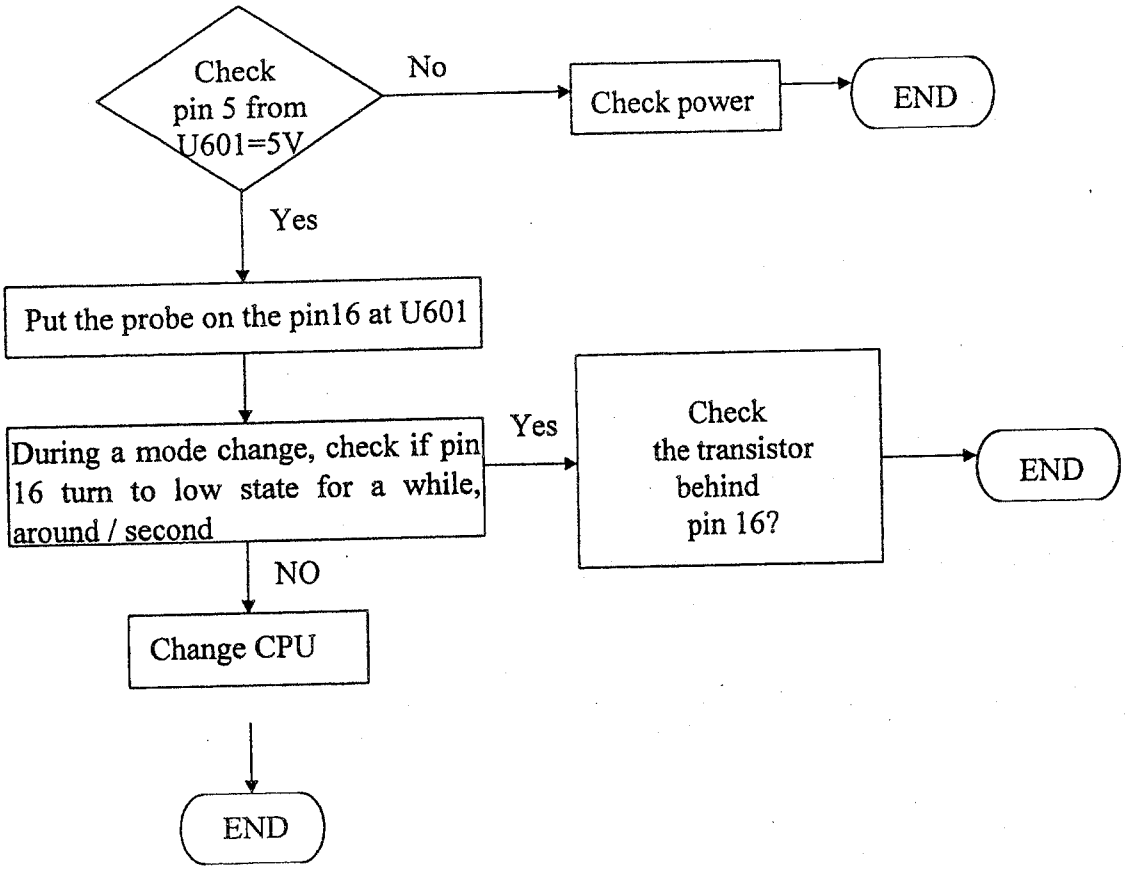
3. The data message could not be stored by E2 PROM



4. The CS signal from monitor is not working properly


Check U601 Pin 5=5V
No
Check the power circuit
END
Yes
Check again if pin 27,28, 29,35 working normally? (reference to table)
Yes
OK
No
Check if pin 39 (H.sync) to U601 is normal?(It mean the value of frequency is correct and the high low level is correct too)
No
Check the H.sync and the component around it
Yes
Check if pin 40 (V.sync) to U601 is normal?(It mean the value of frequency is correct and the high low level is correct too)
No
Check the V. sync and the component around it
Yes
Change CPU
END
END

5. During mode change, there is a noise picture appear on screen



Note: Pin 16 from U601 is mute signal , active low.

SERVICE COMPONENTS

Important Safety Notice
Components identified by the international symbol ⚠ have special characteristics important for safety. When replacing any of these components use only manufacture's specified parts.

RESISTOR

PART NAME & DESCRIPTION			
TYPE		ALLOWANCE	
C	Carbon	F	± 1%
F	Fuse	J	± 5%
M	Metal Oxide	K	± 10%
S	Solid	M	± 20%
W	Wire Wound	G	± 2%

CAPACITOR

PART NAME & DESCRIPTION			
TYPE		ALLOWANCE	
C	Ceramic	C	± 0.25pF
E	Electrolytic	D	± 0.5 pF
P	Polyester	F	± 1 pF
S	Styrol	J	± 5 %
T	Tantalum	K	± 10 %
PP	Polypropylene	L	± 15 %
		M	± 20 %
		P	+100%-0%
		Z	+80%-20%

PARTS LIST

CIRCUITREF & DESCRIPTION	PART NO.
SET TOTAL ASSY	571908101000
DISPLAY ASSY	571908201000
PACKING ASSY	571908202000
VC6 MAXDATA ASSY	571902203433
FRONT COVER ASSY	571908301000
MAIN BOARD ASSY	571908303000A
CRT BOARD ASSY	571908304000A
CRT ASSY	571902402000

CIRCUITREF	DESCRIPTION		PART NO.	SAFETY COMPONENT
RESISTER				
R703,R705,R707,R711	1/8W 10ohm J T	RES CF	211003010000	
R121,R319,R456,R481, R602,R610,R616,R625, R627,R628,R706,R723, R271,R272,R273,R274				
R115,R128,R140,R142, R316,R426,R428,R430, R432,R452,R4F5,R4F6, R601,R609,R615,R624, R636,R637,R720,R258	1/8W 1K J T	RES CF	211003010200	
R113,R119,R126,R134, R148,R152,R161,R163, R406,R414,R444,R457, R473,R492,R494,R495, R605,R611,R612,R613, R614,R633,R638,R639, R641,R642,R643,R644, R647,R653,R655,R670, R702,R708,R719,R725, R506,R526,R546	1/8W 10K J T	RES CF	211003010300	
R139,R165,R344,R408, R498,R4H1,R716	1/8W 100K J T	RES CF	211003010400	
R455,R266,R516,R536, R556	1/8W 1M J T	RES CF	211003010500	
R205,R225,R245,R265	1/8W 150ohm J T	RES CF	211003015100	
R718	1/8W 1.5K J T	RES CF	211003015200	
R141,R320,R412	1/8W 15K J T	RES CF	211003015300	
R474,R4H3	1/8W 18K J T	RES CF	211003018300	
R617	1/8W 200ohm J T	RES CF	211003020100	
R150,R652,R654,R203, R223,R243,R270,R502, R522,R542	1/8W 2K J T	RES CF	211003020200	
R136,R159,R166,R167	1/8W 20K J T	RES CF	211003020300	

R709	1/8W 220ohm J T	RES CF	211003022100	
R116,R405,R407,R419,	1/8W 2.2K J T	RES CF	211003022200	
R600,R608,R623,R632,				
R640				
R411,R503,R505,R523,	1/8W 22K J T	RES CF	211003022300	
R525,R543,R545				
C210,C230,C250	1/8W 240ohm J T	RES CF	211003024100	
R479,R496	1/8W 24K J T	RES CF	211003024300	
R301,R310,R317,R403	1/8W 2.7K J T	RES CF	211003027200	
R4H2	1/8W 27K J T	RES CF	211003027300	
R453,R722	1/8W 3K J T	RES CF	211003030200	
R157,R172,R421,R422,	1/8W 30K J T	RES CF	211003030300	
R423,R424,R433,R434,		RES CF		
R435,R436,R717		RES CF		
R478	1/8W 300K J T	RES CF	211003030400	
R206	1/8W 330ohm J T	RES CF	211003033100	
R404	1/8W 3.3K J T	RES CF	211003033200	
R120,R499	1/8W 33K J T	RES CF	211003033300	
R467	1/8W 3.6K J T	RES CF	211003036200	
R251	1/8W 390ohm J T	RES CF	211003039100	
R466,R480	1/8W 3.9K J T	RES CF	211003039200	
R726	1/8W 430ohm J T	RES CF	211003043100	
R618	1/8W 4.3K J T	RES CF	211003043200	
R713	1/8W 43K J T	RES CF	211003043300	
R507,R527,R547	1/8W 47ohm J T	RES CF	211003047000	
R146,R704,R715	1/8W 470ohm J T	RES CF	211003047100	
R401,R410,R425,R427,	1/8W 4.7K J T	RES CF	211003047200	
R429,R431,R603,R604,				
R250,R504,R524,R544				
R118,R318,R724,R275	1/8W 47K J T	RES CF	211003047300	
R420	1/8W 470K J T	RES CF	211003047400	
R207,R227,R247	1/8W 4.7ohm J T	RES CF	211003047800	
R443	1/8W 51ohm J T	RES CF	211003051000	
R400,R487,R497,R261,	1/8W 5.6K J T	RES CF	211003056200	
R263,R264				
R144,R449	1/8W 680ohm J T	RES CF	211003068100	
R451	1/8W 6.8K J T	RES CF	211003068200	

R201,R202,R221,R222, R241,R242	1/8W 75ohm J T	RES CF	211003075000	
R402	1/8W 750ohm J T	RES CF	211003075100	
R149	1/8W 7.5K J T	RES CF	211003075200	
R267,R268	1/8W 8.2K J T	RES CF	211003082200	
R321,R721	1/8W 82K J T	RES CF	211003082300	
R123,R562	1/4W 100ohm J T	RES CF	211103010100	
R174,R415,R486	1/4W 1K J T	RES CF	211103010200	
R4A4	1/4W 10K J T	RES CF	211103010300	
R485	1/4W 100K J T	RES CF	211103010400	
R308	1/4W 1ohm J T	RES CF	211103010800	
R565	1/4W 150K J T	RES CF	211103015400	
R173	1/4W 2K J T	RES CF	211103020200	
R465	1/4W 22ohm J T	RES CF	211103022000	
R409	1/4W 24K J T	RES CF	211103024300	
R477	1/4W 27ohm J T	RES CF	211103027000	
R124	1/4W 39ohm J	RES CF	211103039000	
R463	1/4W 390ohm J	RES CF	211103039100	
R514,R534,R554	1/4W 56ohm J T	RES CF	211103056000	
R413	1/4W 680ohm J T	RES CF	211103068100	
R458	1/2W 1K J T	RES CF	211203010200	
R469	1/2W 100K J T	RES CF	211203010400	
R442	1/2W 1ohm J T	RES CF	211203010800	
R260	1/2W 150ohm J T	RES CF	211203015100	
R634	1/2W 20ohm J T	RES CF	211203020000	
R171	1/2W 200K J T	RES CF	211203020400	
R131	1/2W 22ohm J T	RES CF	211203022000	
R307	1/2W 300ohm J T	RES CF	211203030100	
R447	1/2W 330ohm J T	RES CF	211203033100	
R701	1/2W 39ohm J T	RES CF	211203039000	
R437,R438,R439,R440, R710	1/2W 47K J T	RES CF	211203047300	
R101	1/2W 470K J T	RES CF	211203047400	⚠
R461,R468	1/2W 9.1M T	RES HIGH	211223091500	
R117	1/4W 130K F T	RES MF	212103013400	
R493	1/4W 150K F T	RES MF	212103015400	
R448	1W 10ohm J 12.5	RES MOF	212501010000	

R162,R164	1W 1K J 12.5	RES MOF	212501010200	
R302	1W 1.3ohm J 12.5	RES MOF	212501013800	
L160	1W 1.5ohm J 12.5	RES MOF	212501015800	
R441	1W 2.2ohm J 12.5	RES MOF	212501022800	
R309	1W 5.6ohm J 12.5	RES MOF	212501056800	
R105,R106	1W 82K J 12.5	RES MOF	212501082300	
R153,R154	2W 100ohm J 15	RES MOF	212601010100	
R462	2W 12ohm J 15	RES MOF	212601012000	
R488	2W 150ohm J 15	RES MOF	212601015100	
R472	2W 150K J 15	RES MOF	212601015400	
R470	2W 20K J 15	RES MOF	212601020300	
R4A2	2W 2.2ohm J 15	RES MOF	212601022800	
R127,R464	2W 0.22ohm J 15	RES MOF	212601022900	
R446	2W 240ohm J 15	RES MOF	212601024100	
R490	2W 27ohm J 15	RES MOF	212601027000	
R348	2W 300ohm J 15	RES MOF	212601030100	
L153	5.6ohm J 2W 5	RES MOF	212602056800	
R111	3W 1K J 20	RES MOF	212701010200	
R108,R109	3W 100K J 20	RES MOF	212701010400	
R129,R130	3W 200K J 20	RES MOF	212701020400	
R471	3W 2.2ohm J 20	RES MOF	212701022800	
R102	9ohm DGC2R9R0Q27A 2PIN	PTCR	231000009000	
R104	4A 5ohm SCK-054	NTCR	231104050800	
VR				
VR601	B 20K M D=6 V 0.1W CF	VR SEMI-FIXED	221300020300	
VR401	200K D=6 V 0.1W CF	VR SEMI-FIXED	221300020400	
VR151	B 50K M D=6 V 0.1W CF	VR SEMI-FIXED	221300050300	
VR400	B 2K M D=6 H 0.1W CF	VR SEMI-FIXED	221400020200	
VR701	B 20K M D=6 H 0.1W CF	VR SEMI-FIXED	221400020300	
CAPACITOR				
C305,C602,C702,C707, C263,C567	100uF M 16V 85 T	CAP ELEC	261002310100	
C151,C416,C206	1000uF M 16V 85 T	CAP ELEC	261002310200	
C605	22uF M 16V 85 T	CAP ELEC	261002322000	
C152,C163	2200uF M 16V 85 T	CAP ELEC	261002322200	
C139,C140,C164,C714, C201,C213,C221,C241,	47uF M 16V 85 T	CAP ELEC	261002347000	

C265				
C131,C309,C209	470Uf M 16V 85 T	CAP ELEC	261002347100	
C142,C156,C162	100Uf M 25V 85 T	CAP ELEC	261003310100	
C141	47Uf M 25V 85 T	CAP ELEC	261003347000	
C307	100Uf M 35V 85 T	CAP ELEC	261004310100	
C400,C415,C419,C452, C477	10Uf M 50V 85 T	CAP ELEC	261005310000	
C137,C418,C446,C454,	1Uf M 50V 85 T	CAP ELEC	261005310800	
C461,C601,C606,C607,	1Uf M 50V 85 T	CAP ELEC	261005310800	
C609,C616	1Uf M 50V 85 T	CAP ELEC	261005310800	
C455	2.2Uf M 50V 85 T	CAP ELEC	261005322800	
C136,C405	0.22Uf M 50V 85 T	CAP ELEC	261005322900	
C705,C214,C244	4.7Uf M 50V 85 T	CAP ELEC	261005347800	
C709	0.47Uf M 50V 85 T	CAP ELEC	261005347900	
C169,C171,C460	470Uf M 100V 85 7.5	CAP ELEC	261008147100	
C561	22Uf M 100V 85 T	CAP ELEC	261008322000	
C451	0.22Uf M 200V 85 T	CAP ELEC	261011322900	
C447	100Uf M 250V 85 7.5	CAP ELEC	261012110100	
C159,C160	47Uf M 250V 85 T	CAP ELEC	261012347000	
C467,C474	4.7Uf M 250V 85 T	CAP ELEC	261012347800	
C442,C475	0.47Uf M 250V 85 T	CAP ELEC	261012347900	
C560	1Uf M 100V 105 TAPING	CAP ELEC	261208310800	
C246,C503,C523,C543	1Uf M 50V 85 NP T	CAP ELEC	261305310800	
C106	150Uf M 400V HP3(25X30)	CAP ELEC 85DEG.	262104215100	⚠
C603,C604	33PF J 50V NPO T	CAP CERAMIC	271501333000	
C580	22Pf J 500V NPO T	CAP CERAMIC	271504322000	
C577	33PF J 1KV NPO T	CAP CERAMIC	271505333000	
C401,C402,C600,C611, C619,C620,C622,C650, C651,C215,C216,C217, C218,C260	100PF K 50V Y5P T	CAP CERAMIC	272001310100	
C117,C138,C303,C315, C410,C432,C478,C479, C613,C724,C264	1000PF K 50V Y5P T	CAP CERAMIC	272001310200	
C628	1500PF K 50V Y5P T	CAP CERAMIC	272001315200	

C480,C704,C706,C708, C710,C712	2200PF K 50V Y5P T	CAP CERAMIC	272001322200	
C618	3300PF K 50V Y5P T	CAP CERAMIC	272001333200	
C111	470PF K 50V Y5P T	CAP CERAMIC	272001347100	
C445,C450	4700PF K 50V Y5P T	CAP CERAMIC	272001347200	
C203	560PF K 50V Y5P T	CAP CERAMIC	272001356100	
C559,C569,C575	100PF K 500V Y5P T	CAP CERAMIC	272004310100	
C507,C527,C547,C564, C566	1000PF K 500V Y5P T	CAP CERAMIC	272004310200	
C444	220PF K 500V Y5P T	CAP CERAMIC	272004322100	
C435	2200PF K 500V Y5P T	CAP CERAMIC	272004322200	
C130,C154	470PF K 500V Y5P T	CAP CERAMIC	272004347100	
C153,C578	100PF K 1KV Y5P T	CAP CERAMIC	272005310100	
C464	1000PF K 1KV Y5P T	CAP CERAMIC	272005310200	
C108,C150	220PF K 1KV Y5P T	CAP CERAMIC	272005322100	
C116,C701,C276	330PF K 1KV Y5P T	CAP CERAMIC	272005333100	
C570	470PF K 1KV Y5P T	CAP CERAMIC	272005347100	
C114,C135,C161,C319, C411,C421,C422,C423, C424,C439,C440,C711, C713,C207,C245,C247, C266,C267,C554,C562, C576,C579,C581	0.01uF M 50V Z5U T	CAP CERAMIC	272101310300	
C118,C462,C501,C508, C521,C526,C541,C568	0.01uF M 500V Z5U T	CAP CERAMIC	272104310300	
C115	0.01uF M 1KV Z5U 7.5	CAP CERAMIC	272105110300	
C563	0.01uF M 2KV Z5U 10	CAP CERAMIC	272106110300	
C261,C262,C270	0.1uF Z 50V Y5V T	CAP CERAMIC	272201310400	
C202,C222,C242	10PF J 50V NPO T	CAP MULTILAYER	273101310000	
C414,C617	0.1uF J 100V PEI T	CAP PLASTIC	281002310400	
C112	0.0027uF J 100V PEI T	CAP PLASTIC	281002327200	
C403,C404,C406	0.01uF J 50V PEN T	CAP PLASTIC	281101310300	
C409	0.0022uF J 50V PEN T	CAP PLASTIC	281101322200	
C703	0.0022uF J 630V PPN 10	CAP PLASTIC	281204122200	
C448	0.00022uF 2KV PPS J 15	CAP PLASTIC	281309122100	
C449	4300PF J 2KV PPS	CAP PLASTIC	281309143200	

C420	0.015uF J 50V MEF T	CAP PLASTIC	281401315300	
C413	0.15uF 50V MEF T	CAP PLASTIC	281401315400	
C441	0.1uF J 250V MEF 10	CAP PLASTIC	281405110400	
C463	0.068uF J 250V MEF P=10	PLASTIC CAP	281405168300	
C109,C110	0.33uF J 400V MEF 20	CAP PLASTIC	281406133400	
C453	0.1uF J 63V MEB T	CAP PLASTIC	281502310400	
C458	0.018uF J 63V MEB T	PLASTIC CAP	281502318300	
C306	0.22uF J 63V MEB T	CAP PLASTIC	281502322400	
C425	0.15uF J 250V PMH 15	CAP PLASTIC	281652115400	
C426	0.33uF J 250V PMH 15	CAP PLASTIC	281652133400	
C428	1.2uF J 250V MPP	CAP PLASTIC	281692112500	
C427	0.68uF J 250V PCMP 22.5	CAP PLASTIC	281692168400	
C429	0.27uF 400V PCMP378	PLASTIC CAP	281693127400	
C100,C105	0.22uF AC 250V 22.5(DX)	CAP X	291000022400	⚠
C102	1000PF AC 250V	CAP Y	291200010200	
C182,C187	2200PF AC 250V (CS)	CAP Y	291200022200	
C183	3300PF AC 250V (CS)	CAP Y	291200033200	⚠
C103,C104	4700PF AC 250V (CS)	CAP Y	291200047200	⚠
COIL				
L408	1mH	CHOKE COIL	321200002200	
L101	35mHV	AC LINE FILTER	321300100703	⚠
L102	20mH	AC LINE FILTER	321300100900	⚠
L103	1.0uH J T	COIL PEAKING	323003010800	
L406,R160	12uH J T	COIL PEAKING	323003012000	
L515,L535,L555	0.22uH K T	COIL PEAKING	323053022900	
L514,L534,L554	0.47uH K T	COIL PEAKING	323053047900	
TRANSFORMER				
T403	2mH (NEW)	CHOKE COIL	321200002700	
T404J	RH12.7X15X7.9	CORE	321500001400	
T404C,T404D,T404F	1-T-20x10x10-EM2	CORE	321500002300	
T404E	22.5x6.4x13.8	CORE	321500002500	
T404I	1-RH-14.2X28.5X8-EM2	CORE	321500002800	
T101	POWER	TRANSFORMER	331000001700	⚠
T404	FBT VC1/UB1	TRANSFORMER	331100001811	⚠
T405	FOCUS	TRANSFORMER	331250000600	
T401	H-DRIVE	TRANSFORMER	331300000500	
T402	H-LINEAR	TRANSFORMER	331500000200	

T100	PFC 19"	PFC TRANSFORMER	331650000400	
T404G	SRA/STO 0.12x112 L=150mm	WIRE	515005401500	
T404H	SRA/STO 0.12x112 L=330mm	WIRE	515005403300	
T404A	1015#18 BK L=120mm/80mm	WIRE ASS'Y	531000001800	
TRANSISTER				
Q136,Q302,Q306,Q409, Q410,Q413,Q432,Q601, Q706	2SA733P	TRANSISTOR	361103073300	
Q151,Q161	2SA1020Y T	TRANSISTOR	361103102000	
Q425	2SC2688K	TRANSISTOR	361300268800	
Q422	2SC5521	TRANSISTOR	361300552100	
Q133,Q135,Q137,Q138, Q152,Q153,Q162,Q163, Q300,Q301,Q305,Q401, Q402,Q403,Q404,Q414, Q417,Q426,Q431,Q610, Q611,Q631,Q632,Q707, Q724	H945P IC:200mA/Vce:50V T	TRANSISTOR	361303094500	
Q412	2SC1213AC T	TRANSISTOR	361303121300	
Q421	2SK941	TRANSISTOR	361500094100	
Q101,Q703	SSS7N80A	TRANSISTOR	361550078000	
Q427,Q429,Q502,Q522, Q542	BF422 T	TRANSISTOR	361603042200	
Q430,Q503,Q523,Q543	BF423 T	TRANSISTOR	361603042300	
Q406	IRFS640A	TRANSISTOR	361700064000	
Q702	2N7000 N channel	TRANSISTOR	362003700000	
Q405,Q407,Q408,Q701	YTAF630	TRANSISTOR	362301063000	
Q411	SFS9634 P channel	TRANSISTOR	362400963400	
DIODE				
D407	SCHOCCKY SB240 2A 40V T	DIODE	370603204000	
D701	UF304(3A/400V) KINK	DIODE	371201300423	
D101,D102,D103,D104	1N5406	DIODE	371300300800	
D135,D137,D138,D141, D408,D411,D414,D415, D417,D418,D419,D420, D428,D601,D602,D603,	1N4148(1A/75V) T	DIODE	371303107500	

D604,D610,D700,D702, D703,D704,D705,D706, ZD406,ZD407,ZD408, D201,D202,D221,D222, D241,D242,D501,D521, D541				
D142,D301,D303,D412, D421,D422,D423,D426	1N4936 (1A/400V) T	DIODE	371313100400	
D405,D416.D504	1N4937 (1A/600V) T	DIODE	371313100600	
D151	FUF5402(3A/200V) KINK	DIODE	371501300209	
D157,D158	FUF5407(3A/800V) KINK	DIODE	371501300809	
D112,D413	UF1006(1A/800V) T	DIODE	371503100800	
D131	UF2003(2A/200V) T	DIODE	371503200200	
D108,D109	UF206G(2A/600V) T	DIODE	371503200600	
D111	UF2006 (2A/800V) T	DIODE	371503200800	
D106	UF306(3A/600V)T	DIODE	371503300623	
D152,D404	ER304 3A/400V	DIODE	371710300423	
D153	UGP30K 3A 800V KINK P=20	DIODE	371751300825	
D406	BY329X-1500S 5A/1500V	DIODE	371960501504	
ZENER DIODE				
ZD402,ZD603,ZD613, ZD614,ZD261	1/2W HZ5C2 5.0V-5.2V T	DIODE ZENER	375003053200	
ZD114,ZD401	1/2W HZ18-2 T	DIODE ZENER	375003180200	
ZD409	1W Z150A 150V 10% T	ZENER DIODE	375503015100	
ZD101,ZD102	1W Z180A 180V 10% T	DIODE ZENER	375503018100	
IC				
U203	LM2437	IC	381000043705	
U201	M52743BSP	IC	381000074315	
U401	TDA4854	IC	381200085404	
U301	TDA8172 vertical process	IC	381300017210	
U701	UC3842AM 8	IC	382500084227	
U101	UC3842BN	IC	382500284210	
U104	TL431 VOLTAGE CONTROL	IC	382660043126	
U603	UPC78L05J 3	IC	382700080502	
U102	TLP721F 4	IC	383500072103	⚠
U202	MTV030N-01	IC	384300000141	
U602	AT24C04 8	IC	384300040425	

U601	VC1 95KHz WT60P1 09CBH	OTP/MTP MCU	384900030063	
CRT				
V501D	19"	DEGAUSSING COIL	321400001507	
V501	0.25mm M46AJM53X76 19"	CRT	411902500504	
V501A	033 0 7700 44	SOCKET CRT	450010000900	
V501G	L=7cm W=2.5cm H=0.05mm	COPPER TAPE	474332500700	
V501H	L=13cm W=2.5cm H=0.05mm	COPPER TAPE	474332501300	
V501P	25KV	CAUTION LABEL	740202400101	
OTHER				
WW2A	RH-6.35x15.88x3.3-R5	CORE	321500002000	
C560A,C563A	1-RH-4x3x2-H6	CORE	321500002400	
B153	6mmX10mm	COIL BEAD	321503000400	
B101,B102,B103,B108, B152,B402,B207,B215, B227,B228,B247,J231	3.5mmX6mm	COIL BEAD	321503001000	
B401,B229,B561,B562	3.5X9X0.8	CORE BEAD	321503001300	
J119,L403,L407	100uH J T	COIL PEAKING	323003010100	
B563	100uH K T	COIL PEAKING	323053010100	
LED2	D=3mm GR/YE L-3WGYW	LED	373502900200	
R566	1/2W HZ303 3.3V-3.5V T	DIODE ZENER	375003033300	
SW101	1P1T 4A/250V UL/CSA/VDE	SWITCH PUSH AC	431401100200	⚠
SW601,SW602	2P1T H (SKHHAL2420-QB)	TACT SW	431602100600	
RL101	2P1T 12V VB12MBU-5	RELAY	432002100400	⚠
S101	SK-1019 SCREW	SOCKET AC	450042000200	
U601A	40PIN 2.54mm D=15.24	IC SOCKET	450050404000	
F101A,F101B	5X20mm 5 t=0.5	CLIP FUSE	450065200200	⚠
TP152,TP401,TP448,G2	R=1.56mm l=13mm	GT PIN	452001561300	
TP103,TP202	R=2.36mm L=14mm	GT PIN	452002361400	
S106	2.5mm 3PIN	BASE PIN	452102500300	
S606	2.5mm 5PIN	BASE PIN	452102500500	
S203	2.5mm 5PIN R/A	BASE PIN	452112500500	
S201	2.5mm 13PIN 90	BASE PIN	452112501300	
S202	2.5mm 14PIN 90	BASE PIN	452112501400	
S301	2.5mm (NARROW) 3P	BASE PIN	452142500300	
S104	5-7.5mm 2PIN A1561WV2-2P	BASE PIN	452205750200	
S404	8-10mm 4PIN JS-1122-4	BASE PIN	452258100400	
F101	3A 250V S-B 5*20 UL/CSA	FUSE	471100030000	⚠

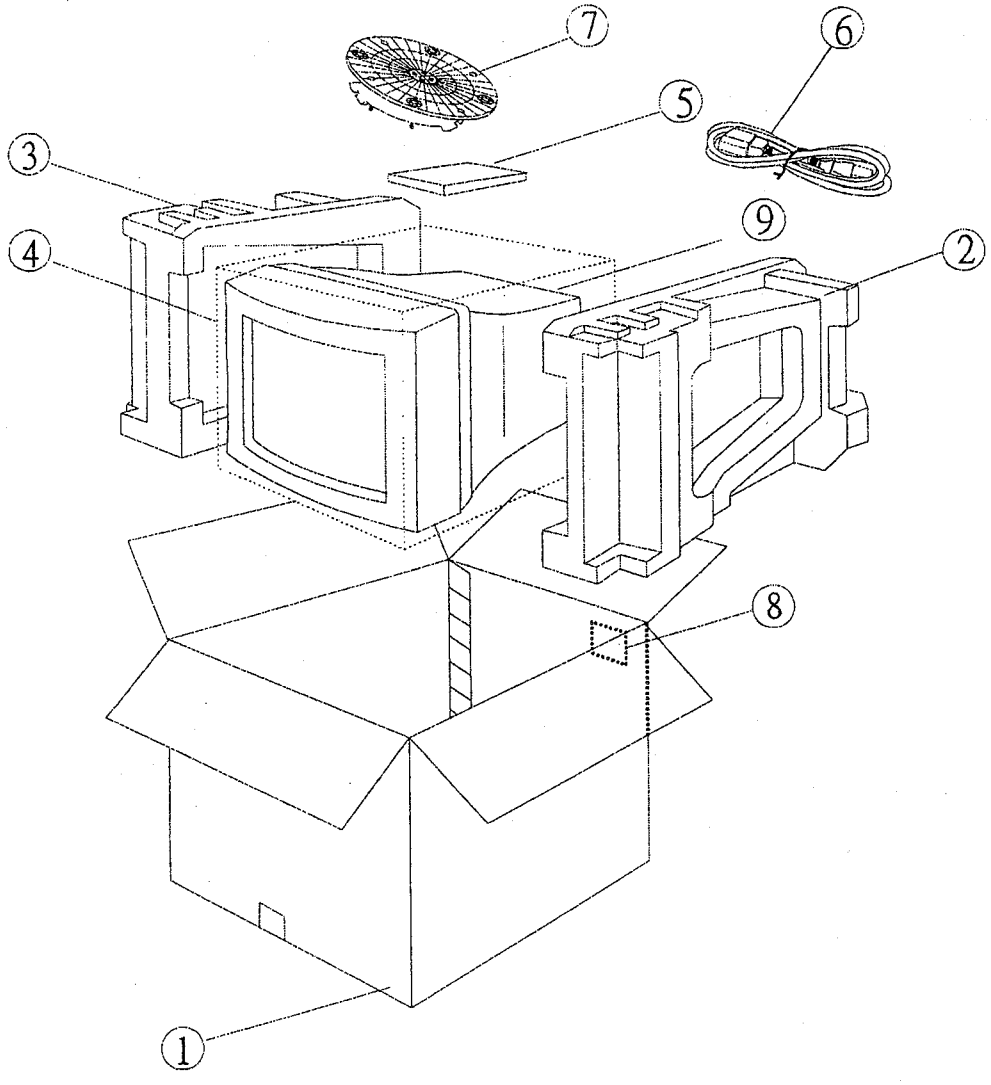
X601	8.0MHz	CRYSTAL	473000080000	
SG505	1.2KV	SPARK GAP	473500112200	
SG501,SG502,SG503	300V T	SPARK GAP	473500130100	
U301T	TO-220 13mmX18.5mm	SILICON INSULATOR	475000100100	
BB	1007#26 L=50mm BLACK	WIRE	510150000500	
J411	1007#26 L=220mm BLACK	WIRE	510150002200	
TP182	STO 1015#22 BK L=250mm	WIRE	511160402500	
TP447	STO 1015#22 BK L=300mm	WIRE	511160403000	
W001	SRA/STO 1015#22 L=210 BK	WIRE	511165402100	
WW2,WW3	UL/CSA 1617#22 BK L=60	WIRE	511360000600	
S101B	SRA 0.12x112 L=160mm	WIRE ASSY	515000201600	
W011	SRA/STO 0.12x112 L=210mm	WIRE	515005402100	
TP409	SVF1 1032#22 L=460 WHITE	WIRE ASSY	523018594600	
S101A	1015#18 GR/YE CORE 6.5T	WIRE	531000001400	
TP427	1015#22 BK L=135cm	WIRE ASSY	531000101000	
TP428	1015#22 BK L=50cm	WIRE ASSY	531000101100	
S106A	SCN3/XHP3 L=360mm TWIST	WIRE	531000301000	
S602	SCN5/XHP5 1007#26 L=420	WIRE ASSY	531000500700	
S606A	SCN5/XHP5 1007#26 L=240	WIRE ASSY	531000500800	
S601	14/14 1007#26 L=300	WIRE ASSY	531001400500	
W201	180CM HP VC6	SIGNAL CABLE	531301802300	
C132,JP190,JP601, L156,Q139,S130,B564, J228,J232,J233,J234, J236,J237,J238,J242, J243	5mmx10mm	JUMPER WIRE	531400005000	
C181,J103,J106,J115, J301,J401,J404,J437, J447,J620,J627,J630, J644,J665,JP110,JP150, JP163,R143,R629, J201,J203,J204,J211, J213,J214,J216,J220, J223,J225,J226,J229, J240,R209	7.5mmx10mm	JUMPER WIRE	531400007500	
J100,J104,J105,J107,	10mmx10mm	JUMPER WIRE	531400010000	

J112,J120,J121,J123, J406,J407,J445,J451, J465,J473,J604,J605, J611,J615,J622,J625, J643,J645,J658,JP102, J209,J215,J221,J227, J239				
J110,J118,J302,J403, J408,J413,J414,J420, J423,J443,J452,J458, J463,J464,J603,J618, J636,J663,J664,R137, R4A1,B201,J205,J210, J219,J235,L202	12.5mmx10mm	JUMPER WIRE	531400012500	
J111,J116,J117,J409, J415,J427,J428,J434, J438,J441,J442,J444, J446,J448,J450,J453, J461,J462,J467,J602, J606,J607,J609,J613, J616,J619,J624,J626, J628,J629,J631,J640, J646,J656,J662,J666, J202,J206,J207,J208, J218,J222,J224,J230, J241	15mmx10mm	JUMPER WIRE	531400015000	
J108,J109,J113,J303, J400,J410,J418,J419, J424,J425,J426,J429, J430,J431,J432,J433, J435,J436,J439,J440, J449,J454,J455,J456, J459,J460,J466,J468, J469,J608,J610,J617, J633,J635,J637,J639, J641,J642,J667,J668, J212,J217	20mmx10mm	JUMPER WIRE	531400020000	

J411A	D=2.5x0.25mm L=20 UL/CSA	TUBE HOT-SHRINK	531502502000	
S601A,V501CB,V501F, V501G,V501M,V501T	L=100mm	CABLE TIE	532000001000	
W002	0.12/64 1015#22 VC6	CRT GROUNGING WIRE	532500005200	
W001	1.8M HP VDE MTW	AC POWER CORD	533000320300	
6F01M	19" MAXDATA	MASK PANEL	710100400101	
6B01	19" TYPE1 TCO MAXDATA GE	BACK COVER	710302100502	
SW101M	TC1	LINK SW.	711000400101	
SW602M	ENCORDOR VC6TCO DARKDARY	KNOB	711101900201	
LED2M	7.5X8X3	LED HOLDER	711201700101	
5S01S	19" 7S	HOLDER	711301800101	
6F01S	MAXDATA TCO VC6	DECORATING (L)	711701500201	
6F01T	MAXDATA TCO VC6	DECORATING ®	711701600201	
6F01P	TCO7S NO.6 MAXDATA BLUE	PUSH BUTTON	711805400201	
6F01R	VC6 TCO (DARK GRAY)	CONTROL BUTTON	711807200201	
6S01	19" 7S	PCB SUPPORT	711901200101	
6S03	GIN LIAN CBS-25SN	PCB SUPPORT	711901300101	
6S02,6S04	GIN LIAN PS-08TG	PCB SUPPORT	711901400101	
U301P	PIN GOOD 604S	TRANSISTOR WASHER	712000300101	
5S01	19" 7S	FUNCTIONAL BRACKET	720107300102	
6F05	LEFT 19"	CRT BRACKET	720107400101	
6F06	RIGHT 19"	CRT BRACKET	720107400201	
6F03	LEFT 19"	SIDE BRACKET	720107500101	
6F02	RIGHT 19"	SIDE BRACKET	720107500201	
5S03N	VA1	VIDEO SHIELDING COVER	720303300101	
5S03	VA1	VIDEO SHIELDING	720303400101	
5S01V	VC6	SHIELDING COVER FOR M/B	720305500101	
5S01W	VC6	SHIELDING BOTTOM FOR M/B	720306000102	
6F01Q	7.8X14.0mm	SPRING	720400500101	
W201N	6.0mm	CLAMP SIGNAL CABLE	720500100201	

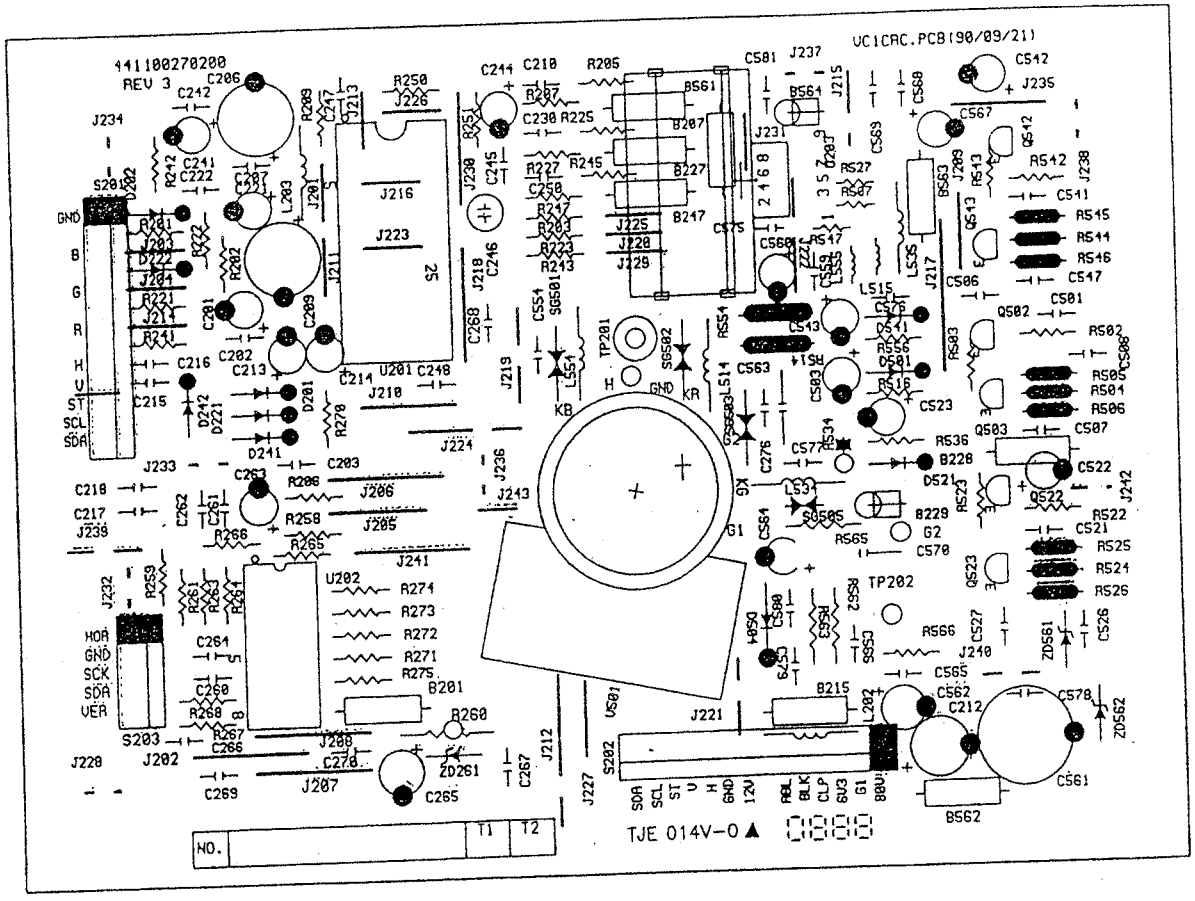
5T01L,5T01R	17"/19"	TIN PLATE INSERT	720800200101	
5S02	MAIN 19" SMALL	HEAT SINK	730102200102	
D106M	(FE) VC6 38.5X10X1.5T	HEAT SINK	730200400101	
Q101M	50Lx18.5Wx70H	HEAT SINK	730400201401	⚠
Q411N	15LX11WX60H	HEAT SINK	730401100901	
U203M	33LX17WX36.7H	HEAT SINK	730401700301	
V501P	25KV	CAUTION LABEL	740202400101	
6B01M		HI POT LABEL	740202700101	
2P01S,6B01S	RICOH B-110A 110mmX300M	RIBBON	741300200101	
5S03P	CPM 3.0X5 Ni	SCREW	771106030301	
5S01R	CPTTB 4X8 Zn-Cc	SCREW	771317050201	
5S01T,Q101N,Q411M	CPTSPB 3.0x8 Zn-Cc	SCREW	771376050201	
U301M	CPTSPB 3.0x12 Zn-Cc	SCREW	771376070201	
6F01N	CPTE 4.0X8 Zn-Cc	SCREW	771607050201	
6B01U	CPTE 5.0X45 Zn-Cc	SCREW	771608150201	
5S01U	CFMB 3.0X10 Zn-Cc	SCREW	772306060201	
5S01R	CTTWB 3.0x8 Zn-Cc	SCREW	773356050201	
D406M,Q407M,Q408M, Q422N,Q703M,U203N, 5S02P	CTTC 3.0X8 Zn	SCREW	773406050201	
5S02M	CTTWC 3.0x8 Zn-Cc	SCREW	773456050201	
6F01W	CTTWC 3.0x12 Zn-Cc	SCREW	773456070201	
S101M	CTTWC 4.0x8 Zn-Cc	SCREW	773457050201	
5S02N	CTTWC 4.0x10 Zn-Cc	SCREW	773457060201	
6F02M,6F03M,6F05M, 6F06M	CTTWC 4.0x12 Zn-Cc	SCREW	773457070201	
6B01T	CTTWC 4.0x20 Zn-Cc	SCREW	773457100201	
6F01M	CHTTC 6X23 Zn-Cc	SCREW	775319110201	
U301N	M3.0 3.0x0.5 Zn-Cc	NUT	780203010201	
1P01	19" 7S	POLYLON (L)	810104600101	
1P02	19" 7S	POLYLON (R)	810104700101	
1P21	900x500x440x0.03t	PE BAG	810202500101	
5S03M	FOR VIDEO BD	SPONGE	810500500101	
1P11	19" MAXDATA VC6 106095	CARTON	820104201401	
6P01M,TP428A,W002A, W002B	3M#898 19mmX50M	TAPE MYLAR	820300400101	
2P02	VC6 MAXDATA	USER'S MANUAL	820490070501	

PACKING PARTS LIST



NO.	Description	Part NO.	NO.	Description	Part NO.
1	Carton	820104201401	6	AC Power Cord(VDE)	533000320300
2	Polylon (R)	810104700101	7	Base Assembly	712400500202
3	Polylon (L)	810104600101	8	Label Bar Code	820600201901
4	PE Bag	810202500101	9	B/C Label	740328300401
5	User's Manual	820490070501			

PCB LAYOUT



CRT Drive Components

SPARE PARTS APPLICATION

Page: of

Order No.: Date:

To:

Attn:

From:

Company name & Address:

Tel NO: Fax NO:

No.	Model	Location	Parts No. /Description	Q'ty	*U/P	Warranty		Remark
						in	out	
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								

Maintenance Information

The following MI Procedure must be adhered to when the product is being returned for service.
MI Procedure:

The following fields must be filled in each ***MI*** sheet.

a. Your company name in the **"Company"** filed and your name in the **"From"** filed.
b. Your company telephone No. in the **"Tel."** filed and fax No. in the **"Fax"** filed.
c. Enter the repaired month in the **"Monthly"** field.
d. Your company address in the **"Addr."** filed.(this will be the return address for the goods).
e. The **"Model" & "Serial No."** is for each monitor.
f. If the defective component is known the **"Defect part"** and **"Symbol and Description"** filed can be filled in.gh.
g. Enter the date your fax the ***MI*** sheet to in **"Date"** field.
h. Enter total page of the ***MI*** sheet to **"Page"** field.
i. Assist our quality and service engineers by describing the failure condition and fault description for each monitor. Tick the appropriate boxes and fill in the code number for each monitor. For the meaning of each code number please refer to the **Fault Code Number & Description Table.**

Fault Code Number & Description Table

No.	Code No	Fault Description	No.	Code No	Fault Description
1	B00	No Raster(LED on.no high voltage)	2	B01	Screen Jitter
3	B02	Screen waving	4	B03	Screen flicker
5	B04	Screen noise	6	B05	Brightness unadjustable
7	B06	Brightness too high	8	B07	Brightness is not sufficient
9	B08	Frequency noise	10	E00	No Power(LED off ,no high voltage)
11	E01	Hold down	12	H00	No Hor. output(Only vert. Line on screen
13	H01	Hor. no sync. (Screen shift)	14	H02	Small Hor. width
15	H03	Large Hor. width	16	V00	No vert. Output(Only hor. line on screen)
17	V01	Vert. No sync.(Screen up and down moving)	18	V02	Small vert. Size
19	V03	Large vert. Size	20	V04	Vert. Jumping
21	V05	Vert overlapping	22	V06	VR(Variable resistor) unadjustable
23	P00	No picture(LED on. High voltage on)	24	P01	Missing red color(Only cyan color)
25	P02	Missing green color(Only purple color)	26	P03	Missing blue color(Only yellow color)
27	P04	Only red color(Red retrace line on screen)	28	P05	Only green color(Green retrace line on screen)
29	P06	Only blur color (Blue retrace line on screen)	30	P07	Retrace line (White color on screen)
31	P08	Poor video	32	P09	Poor focus

Maintenance Information

(MI Sheet)

TO :

Attend :

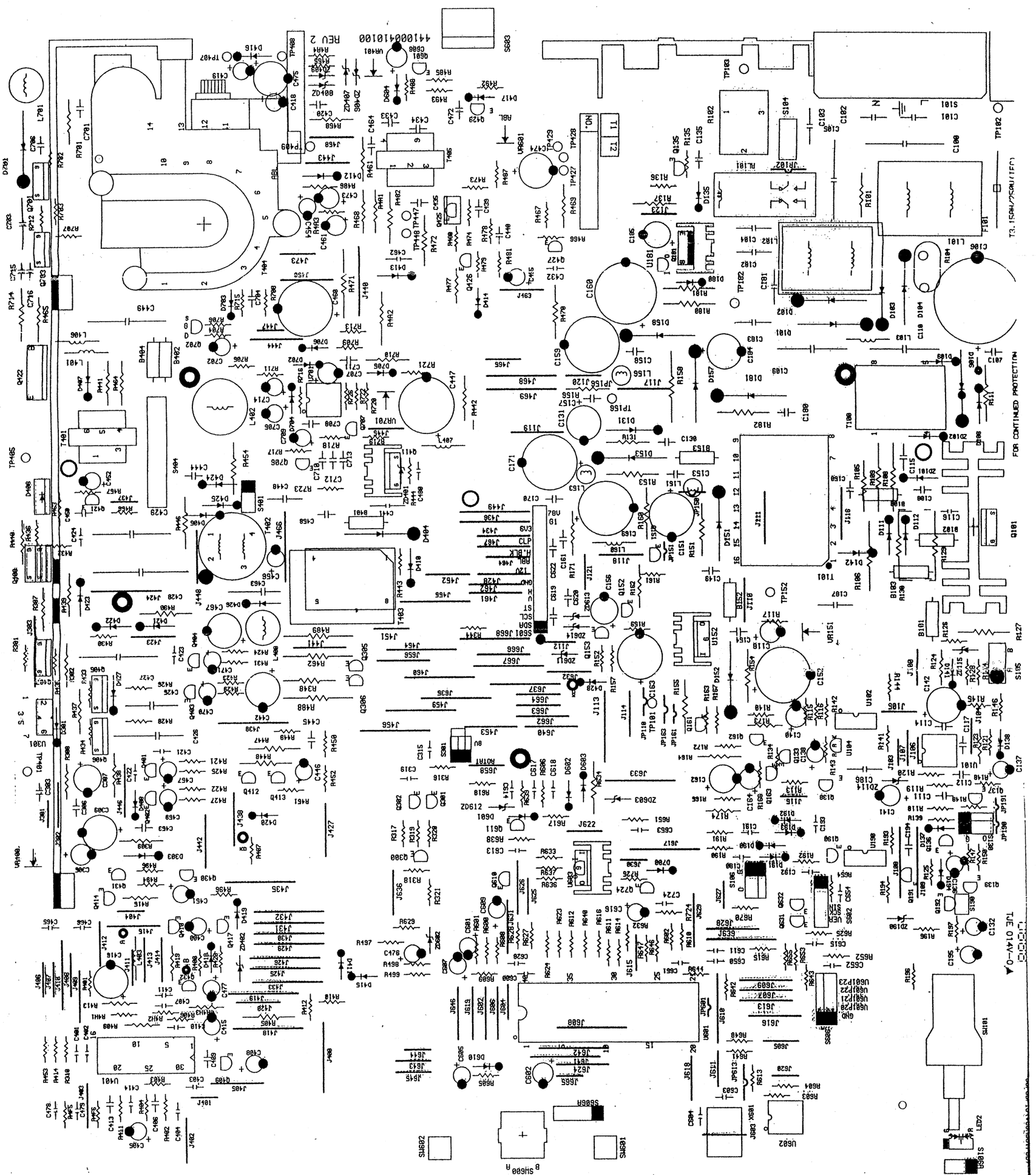
CC :

Date :

Page :

Company :	Tel. :
From :	Fax. :
Monthly :	Addr. :

No.	Model	Serial Number	Descriptions (or Code Number)	Defect Parts List	Remark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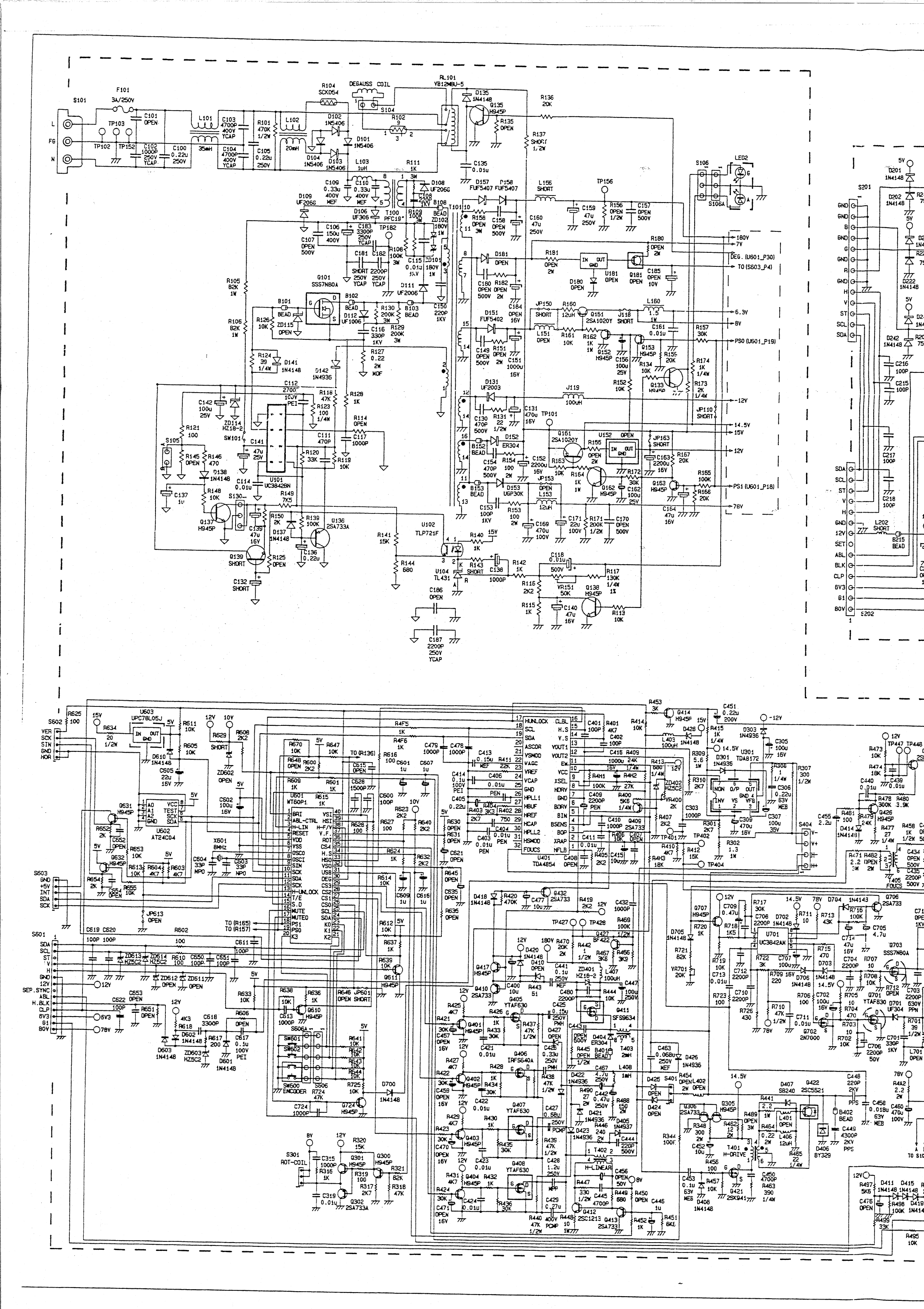
REV 2
FOR CONTINUED PROTECTION
T3.15AH/250AC(TF1)
TDE 0141-0


F101
3A/250V
S101
L
FG
N
TP103
TP102
TP152
C101 OPEN
C102 1000P 250V YCAP
C100 0.22u 250V
L101
35mH
C103 4700P 400V YCAP
C104 4700P 400V YCAP
R101 470K 1/2W
C105 0.22u 250V
L102
20mH
R104 SCK054
DEGAUSS COIL
S104
RL101 VB12MBU-5
D135 1N4148
Q135 H945P
R135 OPEN
R136 20K
R137 SHORT 1/2W
R102 9
D102 1N5406
D101 1N5406
D104 1N5406
D103 1N5406
L103 1uH
R111 1K
C135 0.01u
D157 FUF5407
D158 FUF5407
L156 SHORT
TP156
S106
LED2
S106A
C109 0.33u 400V MEF
C110 0.33u 400V MEF
D108 UF206G
C108 220P 1KV
B108
D109 UF206G
D106 UF306
T100 PFC19*
R109 100K 3W
BEAD
ZD102 180V 1W
T101
R156 OPEN 3W
C158 OPEN 500V
C160 47u 250V
C159 47u 250V
R156 OPEN 1/2W
C157 OPEN 500V
C106 150u 400V
C107 OPEN 500V
C183 3300P 250V YCAP
TP182
C181 SHORT 250V YCAP
C182 2200P 250V YCAP
R106 100K 3W
C115 0.01u 1KV
ZD101 180V 1W
D111 UF2006
C150 220P 1KV
Q101 SSS7N80A
B101
B102
B103
BEAD
R126 10K
ZD115 OPEN
R130 200K 3W
R129 200K 3W
C116 330P 1KV
R105 82K 1W
R106 82K 1W
R124 39 1/4W
D141 1N4148
D142 1N4936
R127 0.22 2W MOF
C112 2700P 100V PEI
R118 47K
R123 100 1/4W
R128 1K
R114 OPEN
C117 1000P
C142 100u 25V
ZD114 HZ18-2
SW101
C141 47u 25V
C111 470P
R120 33K
R119 10K
S105
R145 OPEN
R146 470
D138 1N4148
R121 100
C114 0.01u
U101 UC3842BN
C137 1u
R148 10K
S130
R149 7K5
Q137 H945P
C139 47u 16V
R150 2K
D137 1N4148
R139 100K
U136 2SA733A
C136 0.22u
Q139 SHORT
R125 OPEN
C132 SHORT
D181 OPEN
R181 OPEN 2W
IN OUT GND
U181 OPEN
Q181 OPEN
C185 OPEN 10V
D180 OPEN
R180 OPEN 2W
C180 OPEN 500V
R182 OPEN 2W
C184 OPEN 16V
180V
7V
DEG. (U601_P30)
TO (S603_P4)
D151 FUF5402
JP150 SHORT
R160 12uH
Q151 2SA1020Y
J118 SHORT
L160 1.5 1W
6.3V
8V
L151 OPEN
R161 10K
R162 1K 1W
Q152 H945P
C161 0.01u
R157 30K
PS0 (U601_P19)
C149 OPEN 500V
R151 OPEN 2W
C151 1000u 16V
Q153 H945P
R155 20K
C156 100u 25V
R134 10K
R152 10K
Q133 H945P
R174 1K 1/4W
R173 2K 1/4W
D131 UF2003
J119 100uH
-12V
JP110 SHORT
C130 470P 500V
R131 22 1/2W
C131 470u 16V
TP101
14.5V
15V
12V
Q161 2SA1020Y
U152 OPEN
IN OUT GND
JP163 SHORT
B152 BEAD
D152 ER304
R155 OPEN 2W
C163 2200u 16V
R167 20K
C154 470P 500V
R154 100 2W
C152 2200u 16V
R163 10K
R164 1K 1W
R172 30K
B153 BEAD
D153 UGP30K
JP153 OPEN
L153 12uH
R165 100K
PS1 (U601_P18)
C153 100P 1KV
R153 100 2W
C169 470u 100V
C171 22u 100V
R171 200K 1/2W
C170 OPEN 500V
C164 47u 16V
R166 20K
78V
U102 TLP721F
R141 15K
R140 15V 1K
R144 680
R143 SHORT
C138 1000P
R142 1K
C118 0.01u 500V
R117 130K 1/4W 1%
U104 TL431
C186 OPEN
C187 2200P 250V YCAP
R116 2K2
VR151 50K
Q138 H945P
R115 1K
C140 47u 16V
R113 10K
S201
5V
D201 1N4148
D202 1N4148
D222 1N4148
D242 1N4148
GND
B
G
R
H
V
ST
SCL
SDA
C216 100P
C215 100P
C217 100P
C218 100P
L202 SHORT
B215 BEAD
12V
SET
ABL
BLK
CLP
6V3
8V
S202
S602
YER
SCK
SIN
GND
HOR
R625 100
U603 UPC78L05J
R634 20 1/2W
R611 10K
R605 10K
D610 1N4148
C605 22u 15V
R629 SHORT
R608 2K2
ZD602 OPEN
U602 AT24C04
A0
A1
A2
VCC
TEST
SCK
SDA
Q631 H945P
R652 2K
C652 OPEN
Q632 H945P
R653 10K
C654 OPEN
R655 10K
R613 10K
R604 4K7
R603 4K7
R654 2K
C602 100u 16V
X601 8MHz
C604 33P NPO
C603 33P NPO
S603
GND
+5V
INT
SDA
SCK
JP613 OPEN
R670 10K
R647 10K
R648 OPEN
R600 2K2
R609 1K
R601 1K
U601 WT60P1
C615 OPEN
C628 1500P
C600 100P
C601 1u
C607 1u
R623 2K2
R627 100
R640 2K2
R628 100
R624 1K
R632 2K2
R614 10K
C609 1u
C616 1u
R645 OPEN
C635 OPEN
R635 OPEN
R612 10K
R637 1K
R639 10K
Q611 H945P
R633 10K
R638 10K
R636 1K
C613 1000P
Q610 H945P
R646 OPEN
JP601 SHORT
S606A
SW601
SW602
SW600 ENCODER
S606
R641 10K
R642 10K
R643 10K
R644 10K
R725 10K
R724 47K
C724 1000P
Q724 H945P
D700 1N4148
TO (R136)
TO (R165)
TO (R157)
S601
SDA
SCL
ST
V
H
GND
12V
SEP.SYNC
ABL
H.BLK
CLP
6V3
8V
78V
C619 100P
C620 100P
R602 100
C611 100P
ZD613 HZ5C2
ZD614 HZ5C2
R610 100
C650 100P
C651 100P
ZD612 OPEN
ZD611 OPEN
C622 100P
C653 OPEN
R651 OPEN
R618 4K3
C618 3300P
R617 200
D602 1N4148
D603 1N4148
ZD603 HZ5C2
D601 1N4148
R606 OPEN
C617 0.1u 100V PEI
U401 TDA4854
HUNLOCK
SCL
SDA
ASCOR
VSMOD
VAGC
VREF
VCAP
GND
HPLL1
HBUF
HREF
HCAP
HPLL2
HSMOD
FOUCS
CLBL
H.S
V.S
VOUT1
VOUT2
EW
VCC
XSEL
HDRV
GND
BDRV
BIN
BSENS
BOP
XRAP
NFLB
R4F5 1K
R4F6 1K
R616 100
C479 1000P
C478 1000P
C413 0.15u MEF
R411 22K
C414 0.1u 100V PEI
C406 0.01u PEN
C405 0.22u
R404 3K3
R403 2K7
R402 750
C404 0.01u PEN
C403 0.01u PEN
C401 100P
R401 4K7
C402 100P
C416 1000u 16V
R409 24K 1/4W
R4H1 100K
R4H2 27K
C409 2200P PEN
R400 5K5 1/4W
C410 1000P
Q409 2SA733
C411 0.01u
R405 2K2
C415 10u
C408 OPEN
C407 0.01u
R414 10K
R453 3K
Q414 H945P
C451 0.22u 200V
L403 100uH
D428 1N4148
R415 1K 1/4W
D303 1N4936
C305 100u 16V
14.5V
D301 1N4936
U301 TDA8172
R309 5.6 1W
R310 2K7
R307 1/2W
R308 1 1/4W
C306 0.22u 63V MEB
C309 470u 16V
C307 100u 35V
R307 300
R301 2K7
R302 1.3 1W
S404
V-
V+
H-
H+
ZD402 HZ5C2
VR400 2K
C303 1000P
R407 2K2
TP401
TP402
R410 4K7
R4H3 18K
R412 15K
TP404
C455 2.2u
D414 1N4148
R481 100
R479 24K
R478 300K
R480 3.9K
Q426 H945P
R477 27 1/4W
R458 1K 1/2W
C434 OPEN
C435 2200P 500V
T405 FOUCS
R471 2.2 OPEN 3W
R482 2.2 2W
R498 100K
R499 33K
R495 10K
C476 OPEN
D411 1N4148
D415 1N4148
D419 1N4148
R497 5K6
12V
TP447
TP448
R473 10K
R474 18K
C440 0.01u
C439 0.01u
R418 1N4148
R420 470K
C477 10u
Q432 2SA733
R419 2K2
C432 1000P
TP427
TP428
R469 100K 1/2W
Q427 BF422
R442 1 1/2W
R467 3K6
R466 3K9
D420 1N4148
180V
R470 20K 2K
Q417 H945P
D410 OPEN
C441 0.1u 250V MEF
ZD401 HZ16-2
L407 100uH
C447 100u 250V
Q410 2SA733
C400 10u
R443 51
C480 2200P
R444 10K
Q405 YTAF630
C425 0.15u 250V PMH
Q411 SFS9634
R425 4K7
R421 30K
Q401 H945P
R426 1K
R433 30K
C421 0.01u
R437 47K 1/2W
D427 OPEN
C426 0.33u 250V PMH
C443 OPEN 500V
D404 ER304
R445 OPEN 1/2W
B401 BEAD
T403 2mH
Q406 IRFS640A
R427 4K7
R422 30K
Q402 H945P
R428 1K
R434 30K
C422 0.01u
R438 47K 1/2W
C427 0.68u 250V PCMP
C467 4.7u 250V
L408 1mH
D422 1N4936
C442 0.47u 250V
R490 27 2W
R488 150 2W
D421 1N4936
D405 1N4937
R446 240 2W
C444 220P 500V
D423 1N4936
R429 4K7
R423 30K
Q403 H945P
R430 1K
R435 30K
C470 OPEN 16V
C423 0.01u
R439 47K 1/2W
C428 1.2u 250V MKP
T402
H-LINEAR
R431 4K7
R424 30K
Q404 H945P
R432 1K
C424 0.01u
R436 30K
C471 OPEN 16V
C429 0.27u
C456 OPEN 50V
R447 330 1/2W
C445 4700P
R449 680
R450 OPEN
C446 1u
R440 47K 1/2W
R448 10 1W
Q412 2SC1213
Q413 2SA733
R452 1K
R451 6K8
C463 0.068u 250V MEF
D426 1N4936
D425 OPEN
S401
D424 OPEN
R454 OPEN
L402 OPEN 2W
14.5V
D407 SB240
Q422 2SC5521
C448 220P 2KV PPS
C458 0.018u 63V MEB
C460 470u 100V
B402 BEAD
C449 4300P 2KV PPS
D406 BY329
T401 H-DRIVE
R456 100
C453 0.1u 63V MEB
R457 10K
Q421 2SK941
C450 4700P
R463 390 1/4W
D408 1N4148
Q305 H945P
Q306 2SA733
R462 12 2W
R348 300 2W
R489 OPEN 3W
R464 0.22 2W
L401 OPEN
L406 12uH
R465 22 1/4W
C452 10u
R344 100K
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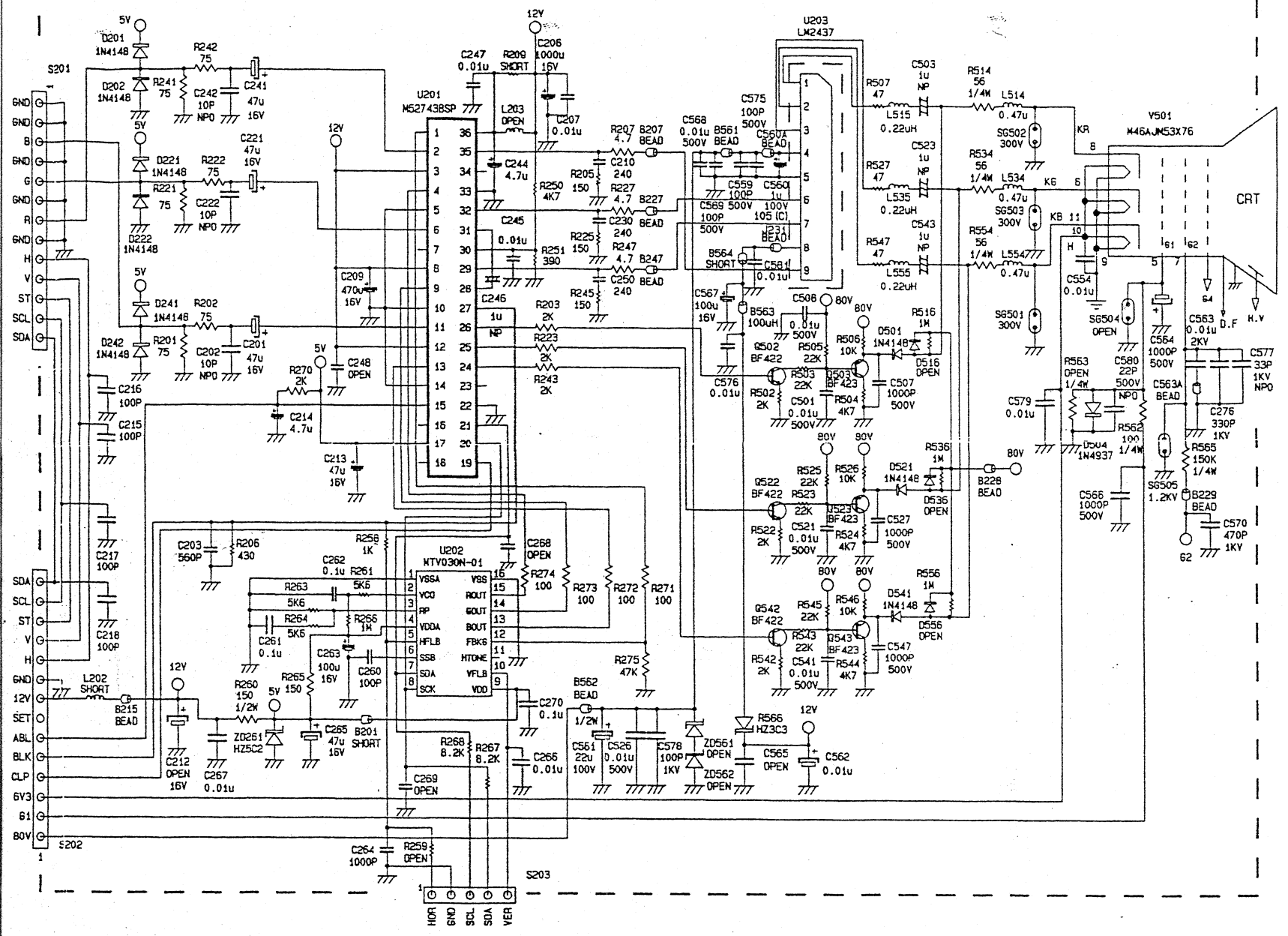
R480 3.9K
R479 24K
R481 100
C455 2.2u
D414 1N4148



NOTE:
1. THE UNIT OF RESISTANCE ' OHM ' IS OMITTED (K-1000 OHMS AND M-1MEG OHMS)
2. ALL RESISTORS ARE ' 1/8 W ' AND ' 5% ' UNLESS OTHERWISE NOTED.
3. ALL CAPACITORS RATING ARE ' 50V ' UNLESS OTHERWISE NOTED.

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APPROVALS / DATE	VC6 MAIN BD & CRT BD SCHEMATIC
DRAWN L. S. HO 10/08/2001	
CHECKED	
ISSUED	
MANAGER	
SIZE A1 / MODEL 106095 / DWG. NO. 441000410000 / REV. B	
SCALE / E/PCO NO. E-020 / SHEET	